A 30-year-old man with an HIV infection is evaluated for frequency, urgency, and dysuria. The most likely cause of these symptoms is:

A bacterial cystitis.

B candida cystitis.

C mycobacterial cystitis.

D bladder hyperreflexia.

E bladder hyporeflexia.

A 30-year-old man with an HIV infection is evaluated for frequency, urgency, and dysuria. The most likely cause of these symptoms is:

D: "bladder hyperreflexia." is correct.

Lower tract urological disorders in human immunodeficiency virus (HIV) infections are due to infections, obstruction, or neurological causes. Approximately 60% of voiding disorders are due to neurological abnormalities, e.g., encephalitis, cerebral toxoplasmosis, etc. Neurogenic voiding dysfunction portends a poor prognosis.

Hermieu, JF, Delmas V, Bocon-Gibod L: Micturition disturbances and human immunodeficiency virus infection. J UROL 1996;156:157.

A five-day-old boy has vomiting and dehydration. His serum CO2 is 12 mEq/l, K 5.5 mEq/l, and creatinine 2.2 mg/dl. A VCUG demonstrates posterior urethral valves and bilateral Grade IV/V vesicoureteral reflux. The best initial management is:

A percutaneous cystostomy.

B percutaneous nephrostomies.

C valve ablation.

D urethral catheter drainage.

E cutaneous vesicostomy.

A five-day-old boy has vomiting and dehydration. His serum CO2 is 12 mEq/l, K 5.5 mEq/l, and creatinine 2.2 mg/dl. A VCUG demonstrates posterior urethral valves and bilateral Grade IV/V vesicoureteral reflux. The best initial management is:

D: "urethral catheter drainage." is correct.

The management of the infant with posterior urethral valves depends somewhat on the severity of the obstruction and the degree of any renal dysplasia present. The main problems arise in management of the infant with severe obstruction and compromised renal function with dehydration, acidosis, and sepsis. Initially, a small infant feeding tube, placed transurethrally, can provide bladder drainage. If initial bladder drainage does not result in satisfactory clinical improvement and the neonate remains medically unstable, temporary supravesical diversion should be considered. Non-intubated, cutaneous pyelostomies provide the most appropriate direct, non-obstructed form of supravesical urinary diversion, with the fewest long-term sequelae.

Gonzales ET: Posterior urethral valves and other urethral anomalies, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 67, pp 2069-2091.

Prostate specific antigen is:

A a protease inhibitor.

B a serine protease.

C complexed primarily to trypsin.

D expressed primarily by prostatic stromal cells.

E expressed exclusively by prostatic epithelial cells.

Prostate specific antigen is:

B: "a serine protease." is correct.

Prostate specific antigen (PSA) is a serine protease that liquefies the ejaculate coagulated by degrading seminal proteins. Protease inhibitors are used to treat HIV. PSA is complexed primarily to alpha-1 antichymotrypsin and is expressed primarily, but not exclusively, in prostatic epithelial cells. PSA is expressed in small amounts by cells of cloacal origin.

Lilja H: Significance of different molecular forms of serum PSA. UROL CLIN N AM 1993;20:681.

During placement of malleable prosthesis, a distal urethral perforation occurs. The contralateral cylinder has not been placed. The best management is:

A. place urethral catheter and complete the implantation.

B. repair urethra and implant the contralateral prosthesis.

C. repair urethra and place a suprapubic tube only.

D. repair urethra, proceed with implantation, and place a suprapubic tube.

E. place urethral catheter and terminate the procedure.

During placement of malleable prosthesis, a distal urethral perforation occurs. The contralateral cylinder has not been placed. The best management is:

E: "place urethral catheter and terminate the procedure." is correct.

If urethral perforation occurs during dilation, it is best to abandon the procedure, divert the urine with a urethral catheter, and return on a later date. If the contralateral prosthesis has already been placed and there is no septal perforation, then it may be left in place. The urine should be diverted. Urethral repair would be difficult and is unnecessary.

Lewis R: Surgery for erectile dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 40, pp 1215-1235.

A three-year-old girl undergoing cardiac catheterization for coarctation of the aorta is found to have a horseshoe kidney. Chromosomal studies will likely show:

A XO/XX.

B XXY.

C XO.

D trisomy 18.

E trisomy 21.

A three-year-old girl undergoing cardiac catheterization for coarctation of the aorta is found to have a horseshoe kidney. Chromosomal studies will likely show:

C: "XO." is correct.

The association of coarctation of the aorta and horseshoe kidney is indicative of Turner's syndrome. Horseshoe kidneys are reported to occur in as many as 10% of females with Turner's syndrome. The karyotype would therefore be 46 XO. Other associated conditions can include short stature, webbed-neck, aortic valve disease, VSD, ASD, and renal duplication.

Mandell J: Sexual differentiation, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 70, pp 2148-2154.

The effect of testosterone on prostatic cells requires:

A 5-alpha-reductase.

B estradiol.

C steroid-binding protein.

D dehydroepiandrosterone.

E aromatase.

The effect of testosterone on prostatic cells requires:

A: "5-alpha-reductase." is correct.

The major intracellular androgen in prostatic cells is dihydrotestosterone (DHT). This is formed by the action of 5-alpha-reductase on free testosterone which gains access to prostatic cells by diffusion from plasma. DHT has an important permissive role in the development of BPH. Finasteride is the first clinically available 5-alpha-reductase inhibitor used to treat BPH.

Partin AW, Coffey DS: The molecular biology, endocrinology, and physiology of the prostate and seminal vesicles, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7, Philadelphia, WB Saunders Co, 1998, vol 2, chap 45, pp 1404-1405.

A 50-year-old man with end-stage polycystic kidney disease is on chronic hemodialysis. His pre-dialysis potassium is consistently in excess of 5.6 mEq/l. He is dialyzed three times per week for 4-1/2 hours per treatment. The most likely cause of his hyperkalemia is:

A: "dietary indiscretion." is correct.

Hyperkalemia is usually not a problem for patients with chronic renal failure. Even end-stage kidneys are capable of some potassium excretion, and significant amounts of potassium may be lost via the intestinal tract. Potassium is restricted in a chronic renal failure diet and the associated protein restriction also curtails potassium intake. While all of the answers are possibilities, excessive intake of potassium is the most common cause of hyperkalemia.

Edelstein CL, Alkhunaizi A, Yaqoob MM, et al: Etiology, pathophysiology, and management of renal failure, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, pp 315-341.

A 50-year-old man with end-stage polycystic kidney disease is on chronic hemodialysis. His pre-dialysis potassium is consistently in excess of 5.6 mEq/l. He is dialyzed three times per week for 4-1/2 hours per treatment. The most likely cause of his hyperkalemia is:

A dietary indiscretion.

B chronic alkalosis.

C gastrointestinal bleeding.

D inadequate dialysis.

E adrenal insufficiency.

A seven-year-old myelomeningocele patient has failed anticholinergic therapy and clean intermittent catheterization for a non-compliant neurogenic bladder. The patient undergoes a mechanical bowel prep and receives perioperative antibiotics. Forty-five minutes after starting an enterocystoplasty, he has acute, severe hypotension. The most likely cause is:

A dehydration secondary to bowel prep.

B sepsis.

C latex allergy.

D antibiotic allergy.

E unrecognized vena caval compression.

A seven-year-old myelomeningocele patient has failed anticholinergic therapy and clean intermittent catheterization for a non-compliant neurogenic bladder. The patient undergoes a mechanical bowel prep and receives perioperative antibiotics. Forty-five minutes after starting an enterocystoplasty, he has acute, severe hypotension. The most likely cause is:

C: "latex allergy." is correct.

Dehydration would usually present at the time of induction of anesthesia. Although sepsis is possible, it is unlikely to be acute. Unrecognized bleeding or pressure on the vena cava are unlikely given the operative exposure necessary. Increasing numbers of patients with myelodysplasia are allergic to latex. Latex precautions should be considered in all spina bifida patients.

Pasquariello CA, Lowe DA, Schwartz RE: Intraoperative anaphylaxis to latex. PED 1993;91:983-986.

A 55-year-old man has fever and progressive irritative urinary symptoms. A urine culture is sterile. He fails to respond to intravenous antibiotics. TRUS demonstrates septated hypoechoic regions in the prostate. The largest hypoechoic area measures 3 x 5 cm. Optimal treatment is:

A transperineal drainage.

B transrectal drainage.

C transurethral unroofing.

D transrectal aspiration for culture.

E oral antifungal therapy.

A 55-year-old man has fever and progressive irritative urinary symptoms. A urine culture is sterile. He fails to respond to intravenous antibiotics. TRUS demonstrates septated hypoechoic regions in the prostate. The largest hypoechoic area measures 3 x 5 cm. Optimal treatment is:

C: "transurethral unroofing." is correct.

Prostatic abscess is characterized by hypoechoic regions or cavities on TRUS. Initial urinary cultures are frequently negative and intraoperative cultures are necessary. Transurethral unroofing of the abscess is the recommended treatment of choice for those who fail to respond to I.V. antibiotics.

Trazzi SJ, Kay CJ, Kaufman DG, et al: The management of prostatic abscess in patients with human immunodeficiency virus. UROL 1994;43:629-633.

Phosphodiesterase inhibitors cause penile smooth muscle relaxation by inhibiting:

A calmodulin binding.

B production of cGMP.

C production of cAMP.

D degradation of phospholipase C.

E degradation of cGMP.

Phosphodiesterase inhibitors cause penile smooth muscle relaxation by inhibiting:

E: "degradation of cGMP." is correct.

cGMP is a second messenger for nitric oxide (NO) that activates protein kinases promoting smooth muscle relaxation. cGMP is degraded to GMP by phosphodiesterase. A phosphodiesterase inhibitor potentiates the effect of cGMP. Ca++ binding to calmodulin is the first step in the initiation of smooth muscle contraction which activates myosin-light chain kinase.

Lue TF, Broderick G: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 39, pp 1181-1214.

A 24-year-old man has acute severe left flank pain. Urinalysis is normal. He denies a history of urinary stone disease or recent trauma. The next step is:

A reassurance.

B non-contrast helical CT scan.

C abdominal ultrasonography.

D IVP.

E MRI Scan.

A 24-year-old man has acute severe left flank pain. Urinalysis is normal. He denies a history of urinary stone disease or recent trauma. The next step is:

B: "non-contrast helical CT scan." is correct.

A clinical history of acute renal colic should not be dismissed due to a normal urinalysis without evidence of microhematuria. A substantial number of patients with acute renal colic will present with a normal urinalysis. Non-contrast CT is the study of choice to confirm the diagnosis of nephro- or ureterolithiasis. Additionally, CT imaging can exclude other peritoneal or retroperitoneal pathology. IVP with tomography can substantially increase radiation dosage to the patient and frequently does not image ureters in their entirety. Optimal IVP requires a reasonable bowel prep and experienced technicians and radiologists; frequently neither of which are available during evening hours. Abdominal ultrasonography can evaluate kidneys for stone disease however, it is consistently a poor modality to image non-dilated ureters. Reassurance without confirming a diagnosis may be misleading. MRI is a poor imaging modality to assess for urinary stone disease.

Bove P, Kaplan D, Dalrymple N, et al: Reexamining the value of hematuria testing in patients with acute flank pain. J UROL 1999;Sep,162(3 Pt 1):685-687.

Detumescence is mediated by the:

A cavernous nerves.

B sympathetic nervous system.

C parasympathetic nervous system.

D nervi erigentes (S2, S3, S4).

E pudendal nerves.

Detumescence is mediated by the:

B: "sympathetic nervous system." is correct.

Detumescence is caused by a discharge of the sympathetic nervous system to the cavernous muscle. The pudendal nerves (peripheral nervous system) do not affect the cavernosa directly. The parasympathetic nerves, which include S2, S3, S4, the nervi erigentes, and cavernous nerves, do not cause detumescence but tumescence.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 38, pp 1155-1180.

A 16-year-old girl with known inflammatory bowel disease develops disabling frequency, urgency, and nocturia. She has recurrent E. coli UTIs. Ultrasound shows mildly dilated upper tracts bilaterally. A CT scan shows a thickened bladder wall. Cystoscopy reveals an inflamed trigone without discrete evidence of a fistula. The most important form of therapy for her is:

A intravenous antibiotics.

B temporary diverting colostomy.

C a temporary suprapubic cystostomy.

D medical management of the bowel disease.

E exploratory laparotomy with appropriate bowel resection.

A 16-year-old girl with known inflammatory bowel disease develops disabling frequency, urgency, and nocturia. She has recurrent E. coli UTIs. Ultrasound shows mildly dilated upper tracts bilaterally. A CT scan shows a thickened bladder wall. Cystoscopy reveals an inflamed trigone without discrete evidence of a fistula. The most important form of therapy for her is:

D: "medical management of the bowel disease." is correct.

The most common urologic complication of inflammatory bowel disease is cystitis. This can happen with or without an actual enteric-urinary fistula. Management should be directed at the inflammatory bowel disease and should be managed non-surgically if at all possible.

Glickman RM: Inflammatory bowel disease: Ulcerative colitis and Crohn's disease, in Isselbacher K, Martin J, Fauci A, et al (eds): HARRISON'S PRINCIPLES OF INTERNAL MEDICINE, ed 14. New York, McGraw-Hill, 1998, pp 1633-1645.

The first event to occur with normal micturition is:

A relaxation of the prostate and prostatic capsule.

B opening of the bladder neck.

C relaxation of the external striated sphincter.

D contraction of the bladder body.

E contraction of the bladder base.

The first event to occur with normal micturition is:

C: "relaxation of the external striated sphincter." is correct.

The first recordable event to occur with normal micturition is relaxation of the external striated sphincter. This is followed by a coordinated contraction of the bladder and opening of the bladder neck.

Steers WD: Physiology of the urinary bladder, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 5, p 153.

A 74-year-old woman has symptomatic stress incontinence and detrusor instability, but would like to avoid surgery. The best pharmacologic approach is:

A. oxybutynin.

B. tolterodine.

C. imipramine.

D. terazosin.

E. ephedrine.

A 74-year-old woman has symptomatic stress incontinence and detrusor instability, but would like to avoid surgery. The best pharmacologic approach is:

C: "imipramine." is correct.

Imipramine has both a strong direct inhibitory action on bladder smooth muscle and a stimulant effect on the bladder outlet. The net result is that it promotes urinary storage by preventing detrusor instability and increasing urethral resistance. Phenylpropanolamine, phenylephrine, and ephedrine are sympathomimetic agents. The net result of alpha-adrenergic stimulation is an increase in the resting urethral pressure, which on a theoretic basis should enhance continence due to sphincter abnormalities, but there is no effect on detrusor instability. Oxybutynin and tolterodine have anticholinergic and smooth muscle relaxant effects and have no role in the treatment of stress incontinence. Terazosin would exacerbate this patient's stress incontinence.

Blaivas JG, Romanzi LJ, Heritz DM: Urinary incontinence: Pathophysiology, evaluation, treatment overview, and nonsurgical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 30, pp 1007-1043.

A 30-year-old man has recurrent nephrolithiasis. The stones are composed of guaifenesin and ephedrine. The next step is discontinuation of these medications and:

A psychological counseling.

B potassium citrate.

C hydrochlorothiazide.

D allopurinol.

E sodium bicarbonate.

A 30-year-old man has recurrent nephrolithiasis. The stones are composed of guaifenesin and ephedrine. The next step is discontinuation of these medications and:

A: "psychological counseling." is correct.

These stones develop in patients who consume large quantities of preparations containing guaifenesin and ephedrine; mainly for the stimulant properties of the latter drug. The stones are radiolucent on standard x-ray imaging studies but appear radiodense on computed tomography. A high percentage of these patients have a history of substance abuse. Therefore, psychological counseling is recommended.

Blau JJ: Ephedrine nephrolithiasis associated with chronic ephedrine abuse. J UROL 1998;160:825.

Powell T, Hsu FF, Turk J, Hruska K: Ma-huang strikes again: Ephedrine nephrolithiasis. AM J KID DIS 1998;32:153.

Assimos DG, Langenstroer P, Leinbach RF, et al: Guaifenesin and ephedrine induced stones. J ENDOUROL 1999;13:665-667.

Renovascular hypertension which is likely to respond to angiographic or surgical intervention is usually characterized by:

A marked elevation in plasma renin values.

B elevation of renal vein over inferior vena caval concentrations of renin by at least 25%.

C elevation of ipsilateral renal vein renin by at least 50% over peripheral and contralateral renal vein renin.

D elevation of ipsilateral renal vein renin by 50% over peripheral plasma renin, and by 25% over the contralateral renal vein renin.

E marked elevation of ipsilateral and contralateral renal vein renin as well as peripheral plasma renin.

Renovascular hypertension which is likely to respond to angiographic or surgical intervention is usually characterized by:

D: "elevation of ipsilateral renal vein renin by 50% over peripheral plasma renin, and by 25% over the contralateral renal vein renin." is incorrect.

The response of renovascular hypertension to surgery or angiographic intervention depends upon the type of lesion and its location. Renin is a mediating substance for renovascular hypertension and a search for its origin in helpful. Significantly elevated renin from one renal vein and not the other leads to localization of a candidate for intervention. Further evaluation by imaging and provocative studies involving ACE inhibitors may also confirm the diagnosis and help decide whether a surgical cure is necessary.

Vaughan ED Jr, Sosa RE: Renovascular hypertension and other renal vascular diseases, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 11, pp 436-443.

A 68-year-old man has left flank pain. IVP demonstrates a normal right kidney but non-function on the left. CT scan reveals an 8 cm left renal mass in the hilar region, and a suggestion of a renal vein thrombus. Chest x-ray and blood chemistries are normal. The next step is:

A inferior vena cavogram.

B MRI scan.

C angiogram.

D retrograde pyelogram.

E transesophageal echocardiogram.

A 68-year-old man has left flank pain. IVP demonstrates a normal right kidney but non-function on the left. CT scan reveals an 8 cm left renal mass in the hilar region, and a suggestion of a renal vein thrombus. Chest x-ray and blood chemistries are normal. The next step is:

B: "MRI scan." is correct.

The presentation in this patient is most consistent with renal vein invasion and obstruction from a renal cell carcinoma. Prior to radial nephrectomy, it is essential to know the limit of the thrombus and therefore MRI is the most appropriate next step.

DeKernion JB, Belldegrun A: Renal tumors, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 76, pp 2283-2326.

Two years after bilateral ureteroneocystostomies for vesicoureteral reflux, a nine-year-old girl has sepsis and vomiting. The BUN is 80 mg/dl, serum creatinine 2.9 mg/dl, CO2 12 mEq/l, and K 6.5 mEq/l. Her renal ultrasound shows severe bilateral hydroureteronephrosis. VCUG is normal. The next step is:

A cystoscopy and ureteral catheterization.

B diuretic renal scan.

C bilateral percutaneous nephrostomies.

D cutaneous vesicostomy.

E bilateral loop cutaneous ureterostomies.

Two years after bilateral ureteroneocystostomies for vesicoureteral reflux, a nine-year-old girl has sepsis and vomiting. The BUN is 80 mg/dl, serum creatinine 2.9 mg/dl, CO2 12 mEq/l, and K 6.5 mEq/l. Her renal ultrasound shows severe bilateral hydroureteronephrosis. VCUG is normal. The next step is:

C: "bilateral percutaneous nephrostomies." is correct.

This girl is likely to have post-operative ureteral stenosis with azotemia. Decompression will be necessary to medically stabilize her before reconstruction This is most reliably accomplished by percutaneous nephrostomies which will not interfere with ultimate surgical revision of the ureterovesical anastomosis.

Peters CA, Retik AB: Ureteral reimplantation: Including megaureter, in Marshall FF (ed): TEXTBOOK OF OPERATIVE UROLOGY. Philadelphia, WB Saunders Co, 1996, chap 105, pp 871-872.

Two years ago, a 60-year-old man underwent distal ureterectomy and ureteroneocystostomy for Stage Ta (O), Grade II transitional cell carcinoma of the ureter. A recent IVP is normal. Surveillance cystoscopy reveals a friable lesion near the new ureteral orifice managed with transurethral resection. Pathology reveals nephrogenic adenoma. The next step is:

A partial cystectomy with ureteral reimplantation.

B re-biopsy with random bladder biopsies.

C intravesical BCG.

D periodic cystoscopy.

E suppressive antibiotic therapy.

Two years ago, a 60-year-old man underwent distal ureterectomy and ureteroneocystostomy for Stage Ta (O), Grade II transitional cell carcinoma of the ureter. A recent IVP is normal. Surveillance cystoscopy reveals a friable lesion near the new ureteral orifice managed with transurethral resection. Pathology reveals nephrogenic adenoma. The next step is:

D: "periodic cystoscopy." is correct.

Nephrogenic adenoma is an unusual lesion which can mimic papillary transitional cell carcinoma in appearance. Most appear to be associated with local irritation and one series reported a higher incidence in patients who underwent renal transplantation and ureteral reimplantation. No treatment other than endoscopic resection is required.

Fournier G, Menut P, Moal MC, Hardy E: Nephrogenic adenoma of the bladder in renal transplant recipients. J UROL 1996;156:41-44.

A 58-year-old obese man has 400 ml of bile-stained fluid coming from his drain two days following transperitoneal laparoscopic unroofing of a large right renal cyst. He is afebrile and his bowel sounds are normal. The leakage persists over the next five days despite nasogastric suction. KUB and upright abdominal x-rays are normal. The next step is:

A feeding jejunostomy tube.

B laparotomy.

C parenteral nutrition.

D somatostatin.

E small bowel suction (Kantor) tube.

A 58-year-old obese man has 400 ml of bile-stained fluid coming from his drain two days following transperitoneal laparoscopic unroofing of a large right renal cyst. He is afebrile and his bowel sounds are normal. The leakage persists over the next five days despite nasogastric suction. KUB and upright abdominal x-rays are normal. The next step is:

C: "parenteral nutrition." is correct.

Immediate reoperation for fistula closure is not indicated as most fistulae heal with parenteral nutrition. Parenteral nutrition has significantly improved the mortality and prognosis of patients with enterocutaneous fistulae and has not only increased the rate of spontaneous fistula closure but also improved nutritional status of patients needing repeated operations.

Levy E, Frileux P, Cugnenc PH, Honiger J, et al: High-output external fistulae of the small bowel: Management with continuous enteral nutrition. BR J SUR 1989;76(7):676-679.

The vein draining into the dorsal (posterior) aspect of the left renal vein is the:

A lumbar.

B gonadal.

C phrenic.

D adrenal.

E azygos.

The vein draining into the dorsal (posterior) aspect of the left renal vein is the:

A: "lumbar." is correct.

While the gonadal and adrenal veins can be easily appreciated early in the dissection, often large lumbar vessels draining posteriorly from the left renal vein require special double ligature and division. These become manifest in the course of complete mobilization of the vein an effort to give the transplant surgeon maximum length of left renal vein.

Kabalin JN: Surgical anatomy of the retroperitoneum, kidneys, and ureters, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 2, p 77.

One week following partial nephrectomy for a renal tumor, there is 500 cc per day of urine from a flank drain. A retrograde pyelogram demonstrates a filling defect in the upper ureter causing partial obstruction. The best management is:

A observation.

B re-exploration of the kidney.

C ureteroscopy.

D percutaneous nephrostomy.

E internal ureteral stent plus urethral catheter.

One week following partial nephrectomy for a renal tumor, there is 500 cc per day of urine from a flank drain. A retrograde pyelogram demonstrates a filling defect in the upper ureter causing partial obstruction. The best management is:

E: "internal ureteral stent plus urethral catheter." is correct.

Urinary fistula is the most common complication after partial nephrectomy. In the absence of obstruction of the collecting system most fistulas will close spontaneously within several weeks and do not require further therapy. An obstruction of the collecting system, typically due to a clot, may delay or prevent fistula closure and should be treated to promote closure. The best approach is placement of a double J ureteral stent and a Foley catheter - placement of a stent alone will permit urine from the opposite kidney to reflux up the stent and may actually increase the fistula output. Placement of the Foley catheter will prevent this from occurring. An internal stent is less invasive than a percutaneous nephrostomy and more comfortable for the patient. Early re-exploration of a kidney after partial nephrectomy is rarely indicated and usually results in loss of the renal unit.

Campbell SC, Novick AC, Streem SB, Klein E, Licht M: Complications of nephron sparing surgery for renal tumors. J UROL 1994;151:1177-1180.

A 75-year-old woman has recurrent cystitis. Physical examination demonstrates a Grade I cystocele and atrophic vaginitis. A postvoid residual is 45 cc. IVP and VCUG are normal. The best management is:

A vaginal pessary.

B oral estrogen.

C intravaginal estrogen.

D cranberry juice.

E prophylactic antibiotics.

A 75-year-old woman has recurrent cystitis. Physical examination demonstrates a Grade I cystocele and atrophic vaginitis. A postvoid residual is 45 cc. IVP and VCUG are normal. The best management is:

C: "intravaginal estrogen." is correct.

The female lower urinary tract contains a significant number of estrogen receptors. After menopause, diminished levels of glycogen are produced as a result of decreased estrogen production. This alters the vaginal flora resulting in a decrease of the normally dominant lactobacilli. Vaginal pH then rises and can result in overgrowth of enteric organisms. As a result there may be frequent ascending urinary tract infections. In a randomized double blind study intravaginal estriol decreased the incidence of urinary infection in post menopausal women with recurrent infections. Although oral estrogens and cranberry juice have been used, they have not been consistently shown to decrease the rate of recurrent infections. Additionally, oral estrogens have significant systemic effects.

Raz R, Stamm WE: A controlled trial of intravaginal estriol in post menopausal women with recurrent urinary tract infections. NEJM 1993;329:753-756.

A 54-year-old woman who underwent radiation therapy for cervical cancer two years ago has microscopic hematuria. Transurethral resection of a lesion 2 cm above the left ureteral orifice reveals an inverted papilloma. Three days post-operatively, she develops a vesicovaginal fistula. The best treatment is:

A immediate transvaginal repair.

B transvaginal repair in six months.

C immediate transabdominal repair.

D transabdominal repair in six months.

E urinary diversion.

A 54-year-old woman who underwent radiation therapy for cervical cancer two years ago has microscopic hematuria. Transurethral resection of a lesion 2 cm above the left ureteral orifice reveals an inverted papilloma. Three days post-operatively, she develops a vesicovaginal fistula. The best treatment is:

C: "immediate transabdominal repair." is correct.

In a woman with no evidence of abscess formation or a fluid collection, there is little need to wait an extended period of time before fistula repair. The abdominal approach provides better access to a radiation induced fistula and allows an omental pedicle graft to be interposed between the bladder and vaginal wall. Obliteration of dead space, good bladder drainage, control of infection and interposition of healthy tissue are critical elements to fistula closure.

Leach GE, Trackman BA: Surgery for vesicovaginal and urethrovaginal fistula and diverticulum, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 37, p 1135.

A two-year-old boy has a right radical orchiectomy for yolk sac tumor of the testis. The preoperative elevated level of alpha-fetoprotein returns to normal, and CT scan of the chest and abdomen are normal. In addition to long-term follow up with periodic metastatic work-up, appropriate management includes:

A retroperitoneal lymphadenectomy.

B retroperitoneal lymphadenectomy and combination chemotherapy for six months.

C actinomycin D and vincristine for six months.

D bleomycin, etoposide, and platinum for three months.

E surveillance.

A two-year-old boy has a right radical orchiectomy for yolk sac tumor of the testis. The preoperative elevated level of alpha-fetoprotein returns to normal, and CT scan of the chest and abdomen are normal. In addition to long-term follow up with periodic metastatic work-up, appropriate management includes:

E: "surveillance." is correct.

Stage I prepubertal yolk sac testis tumors are best treated initially by orchiectomy alone, with periodic follow-up for metastatic disease. There is no advantage to early retroperitoneal lymphadenectomy and/or prophylactic chemotherapy.

Ritchey ML, Andrassy RJ, Kelalis PP: Pediatric urologic oncology, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, 1996, vol 3, chap 58, pp 2703-2704.

A four-year-old boy with previously treated urethral valves and hydronephrosis has nocturnal enuresis and some daytime wetness. A 24-hour urine collection shows a volume of 1800 ml. The best treatment is:

A vasopressin.

B salt restriction.

C postvoid catheterization.

D decrease oral fluid intake.

E increase frequency of voiding.

A four-year-old boy with previously treated urethral valves and hydronephrosis has nocturnal enuresis and some daytime wetness. A 24-hour urine collection shows a volume of 1800 ml. The best treatment is:

E: "increase frequency of voiding." is correct.

Patients with a concentrating defect related to early obstruction (nephrogenic diabetes insipidus) will not be able to significantly decrease urine volume with mild fluid restriction. Lasix and salt restrictions as well will not usually result in reduction in urine volume. These patients, by definition, will not respond to vasopressin. Postvoid catheterizations would be useful only if incomplete voiding is suspected (which is sometimes the case with the previously resected valve patients). Of the choices offered, more frequent voidings may result in resolution of both the daytime and nighttime wetting. It may be necessary, however, for this young man to get up once or twice per night. The character of this bladder will have major impact on therapy. If the bladder has reduced compliance with a reduced volume, anticholinergic therapy should be considered.

Gonzales ET Jr: Posterior urethral valves and other urethral anomalies, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 67, pp 2069-2091.

A 55-year-old woman has unilateral hydronephrosis on a routine follow-up IVP two years after radical cystectomy and refluxing colon conduit diversion for a Stage T2, Grade III transitional cell carcinoma of the bladder. She received pelvic irradiation 12 years ago for cervical carcinoma. The most appropriate initial study to evaluate her is:

A CT scan of the abdomen and pelvis.

B urinary cytology.

C loop endoscopy.

D antegrade nephrostogram.

E balloon dilation.

A 55-year-old woman has unilateral hydronephrosis on a routine follow-up IVP two years after radical cystectomy and refluxing colon conduit diversion for a Stage T2, Grade III transitional cell carcinoma of the bladder. She received pelvic irradiation 12 years ago for cervical carcinoma. The most appropriate initial study to evaluate her is:

B: "urinary cytology." is correct.

Early hydronephrosis in this patient suggests recurrent tumor. Urinary cytology from the conduit will be positive with a high grade tumor in greater than 80% of cases. If the cytology is positive, then a CT of the abdomen and pelvis with 5 mm cuts would be the next most appropriate study. Loopogram, loop endoscopy, and percutaneous nephrostomy could be performed later if the former two studies were inconclusive.

Giella JG, Ring K, Olsson CA, Karp FS, Benson MC: The predictive value of flow cytometry and urinary cytology in the followup of patients with transitional cell carcinoma of the bladder. J UROL 1992;148:293-296.

A 22-year-old woman has a blood pressure of 160/110 mm Hg. Her serum potassium is 2.4 mEq/l while her other serum electrolytes are normal. CT scan demonstrates a 2 cm peripheral renal mass with a normal contralateral kidney. Plasma renin activity is 6.4 (normal is 0.5-1.6) ng/ml/hr. The next step is:

A renal angiography.

B renal venous renin sampling.

C captopril renogram.

D radical nephrectomy.

E partial nephrectomy.

A 22-year-old woman has a blood pressure of 160/110 mm Hg. Her serum potassium is 2.4 mEq/l while her other serum electrolytes are normal. CT scan demonstrates a 2 cm peripheral renal mass with a normal contralateral kidney. Plasma renin activity is 6.4 (normal is 0.5-1.6) ng/ml/hr. The next step is:

E: "partial nephrectomy." is correct.

Reninomas are rare renal tumors associated with hypertension, hypokalemia, and a solid small renal mass. The critical test is plasma renin activity which is usually extremely high. Almost all are shown on CT scan as a hypodense mass, which is hypovascular. In most cases it is not necessary to control the renal pedicle and an arteriogram is not mandatory. The patient should be treated with nephron sparing surgery, i.e. resection or partial nephrectomy because these tumors are benign in nature.

Haab F, Duclos JM, Guyenne NT, Plouin PF, et al: Renin secreting tumors: Diagnosis, conservative surgical approach and long term results. J UROL 1995;153:1781-1784.

Vaughan ED Jr: Renal and adrenal sparing surgery for patients with primary aldosteronism and primary reninoma (editorial). J UROL 1995;153:1785.

A 64-year-old woman underwent a Marshall-Marchetti-Krantz urethropexy five years ago and a transvaginal urethropexy one year ago, but still has severe urinary incontinence. She leaks with coughing and sneezing, and also without any physical activity. She denies urge incontinence. The best diagnostic test is:

B: "videourodynamics." is correct.

Although it can be argued that not all women initially presenting with urinary incontinence need urodynamics, few deny the need for in-depth testing after failed surgeries. A CMG or cystogram alone offer limited information. Only videourodynamics can ascertain whether involuntary contractions are present, elevated voiding pressures suggestive of obstruction, and whether recurrent urethral hypermobility exists. An abdominal (Valsalva) leak point pressure would also be performed to ascertain whether intrinsic sphincter deficiency exists. A urethral pressure profile alone can not assess sphincter function.

Steers W, Barrett D, Wein A: Voiding dysfunction: Diagnosis, classification and management, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY. St. Louis, Mosby Year Book, 1996, pp 1220-1326.

A 64-year-old woman underwent a Marshall-Marchetti-Krantz urethropexy five years ago and a transvaginal urethropexy one year ago, but still has severe urinary incontinence. She leaks with coughing and sneezing, and also without any physical activity. She denies urge incontinence. The best diagnostic test is:

A urethral pressure profile.

B videourodynamics.

C cystometry.

D VCUG.

E CMG-EMG.

A 32-year-old woman complains of a malodorous fishy vaginal discharge. She has a single male partner and uses an intrauterine device for contraception. The next step is:

B: "metronidazole for patient." is correct.

Bacterial vaginosis results from an alteration of normal vaginal flora with a predominance of Lactobacillus species and high concentrations of anaerobic bacteria. Diagnosis can be confirmed with identification of clue cells, a homogenous vaginal discharge, a vaginal pH > 4.5, and a malodorous fishy vaginal discharge. It is more prevalent in lesbians. Risk factors may include multiple sexual partners, a new sexual partner, use of an intrauterine device, and douching. Treating the patient is as effective as treating the patient and partner. Symptoms may recur in 1/3 of patients after treatment. Metronidazole is the treatment of choice.

Colli E, Landoni M, Parazzini F: Treatment of male partners and recurrence of bacterial vaginosis: A randomized trial. GENITOURIN MED 1997;Aug73(4):267-270.

A 32-year-old woman complains of a malodorous fishy vaginal discharge. She has a single male partner and uses an intrauterine device for contraception. The next step is:

A remove intrauterine device.

B metronidazole for patient.

C metronidazole for patient and partner.

D ciprofloxacin for patient.

E ciprofloxacin for patient and partner.

Which type of urinary tract reconstruction is most likely to be associated with the following serum electrolyte abnormalities: sodium 115 mEq/l, chloride 85 mEq/l, potassium 6.2 mEq/l, bicarbonate 15 mEq/l:

C: "jejunal conduit." is correct.

Jejunal diversion results in a hyponatremic, hypochloremic, hyperkalemic state which is due to the high permeability of the jejunum to fluid and electrolytes. Diversions using bowel distal to the jejunum are associated with hyperchloremic metabolic acidosis. Patients with gastrocystoplasty will be more likely to have a metabolic alkalosis.

Koch MO: Fluid and electrolyte abnormalities in urologic practice. AUA UPDATE SERIES 1992, vol 11, lesson 12.

Which type of urinary tract reconstruction is most likely to be associated with the following serum electrolyte abnormalities: sodium 115 mEq/l, chloride 85 mEq/l, potassium 6.2 mEq/l, bicarbonate 15 mEq/l:

A orthotopic ileal bladder.

B gastrocystoplasty.

C jejunal conduit.

D ureterosigmoidostomy.

E sigmoid colon conduit.

The optimal tissue for early coverage of the perineum following an avulsion skin injury is a(n):

D: "split thickness skin graft." is correct.

A split thickness skin graft takes much more readily than a full thickness skin graft or a dermal graft because capillary ingrowth into the cutis graft is more rapid. Skin flaps and musculocutaneous flaps have no role in the acute management of avulsion injuries.

Michielsen D, Van Hee R, Neetens C, et al: Burns to the genitalia and the perineum. J UROL 1998:159(2):418-419.

The optimal tissue for early coverage of the perineum following an avulsion skin injury is a(n):

A island skin flap.

B musculocutaneous flap.

C full thickness skin graft.

D split thickness skin graft.

E dermal graft.

Which of the following is a promoter of urinary stone crystallization:

D: "matrix." is correct.

Factors that determine kidney stone formation include supersaturation, inhibitors and promoters of crystallization, and intrarenal anatomy. Promoters are matrix and Tamm-Horsfall protein whereas inhibitors are citrate, magnesium, pyrophosphate, bikunin, glycosaminoglycans, and osteopontin.

Hess B, Kok DJ: Nucleation, growth and aggregation of the stone forming crystals, in Coe FL, Favus MH, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott-Raven, 1996, chap 3.

Which of the following is a promoter of urinary stone crystallization:

A glycosaminoglycans.

B bikunin.

C magnesium.

D matrix.

E pyrophosphate.

A 35-year-old man has a serum creatinine of 15 mg/dl and a serum potassium of 7.5 mEq/l. Electrocardiogram shows peaked T waves and a widened QRS complex. The most appropriate initial treatment of his hyperkalemia is:

C: "intravenous sodium bicarbonate and calcium gluconate." is correct.

Most (99%) of total body potassium is located within cells. Extracellular potassium is closely regulated to maintain resting membrane potentials that are critical to nerve and muscle function. Potassium is secreted by the distal convoluted tubule and collecting duct. When this mechanism is impaired in renal failure, hyperkalemia (plasma K in excess of 5.3 mEq/l) occurs. This patient is nearing a crisis in terms of cardiac function. Calcium gluconate immediately but transiently mitigates the potassium effect. Sodium bicarbonate lowers plasma K+ concentration within an hour. Hemodialysis and Kayexalate cannot be initiated as quickly. Insulin and glucose also take 30-60 minutes to work.

Rose BD, Rennke HG: RENAL PATHOPHYSIOLOGY - THE ESSENTIALS. Baltimore, Williams & Wilkins, 1994, pp 176-184.

A 35-year-old man has a serum creatinine of 15 mg/dl and a serum potassium of 7.5 mEq/l. Electrocardiogram shows peaked T waves and a widened QRS complex. The most appropriate initial treatment of his hyperkalemia is:

A hemodialysis.

B Kayexalate enema.

C intravenous sodium bicarbonate and calcium gluconate.

D intravenous concentrated glucose and regular insulin in the same infusion.

E intravenous concentrated glucose and regular insulin in separate infusions.

A 42-year-old man is seen for prostate evaluation. His paternal grandfather died of prostate cancer at age 62. Digital rectal examination is normal. His PSA is 3.5 with a free to total ratio of 20%. The next step is:

C: "ultrasound directed biopsies of the prostate." is correct.

Patients with first-degree relatives with prostate cancer, particularly at a young age, are at increased risk for the development of prostate cancer. A PSA of 3.5 while still within the normal range, is above normal for a 42-year-old man. Because of the total PSA and positive family history, he should undergo prostate biopsy.

Carter B, Bova G, et al: Hereditary prostate cancer: Epidemiologic and clinical features. J UROL 1993:150:797-802.

A 42-year-old man is seen for prostate evaluation. His paternal grandfather died of prostate cancer at age 62. Digital rectal examination is normal. His PSA is 3.5 with a free to total ratio of 20%. The next step is:

A transrectal ultrasonography.

B yearly PSA and DRE beginning at age 50.

C ultrasound directed biopsies of the prostate.

D antibiotic therapy for 4 weeks, then repeat PSA.

E yearly PSA and DRE starting now.

A 65-year-old post-menopausal woman with decreased bone density develops her third calcium oxalate renal calculus in five years. Metabolic evaluation reveals a mildly elevated urinary calcium after calcium loading, consistent with Type I absorptive hypercalciuria. The most appropriate treatment is:

C: "hydrochlorothiazide." is correct.

Sodium cellulose phosphate can restore normal calcium excretion in those with absorptive hypercalciuria. However, it can lead to a negative calcium balance. Thiazides are appropriate treatment for those with mild to moderate absorptive hypercalciuria and those at an increased risk of bone disease such as post-menopausal women and growing children. Thiazide therapy induces an increase in bone density. Thiazides may lose their hypocalciuric effect after two to four years, and patients may be switched to sodium cellulose phosphate for a short period of time. Orthophosphates are indicated for the management of absorptive hypercalciuria, Type III, where a renal leak of phosphate is thought to stimulate 1,25-(OH)-2 D synthesis. Orthophosphates inhibit this synthesis.

Preminger GM: Is there a need for medical evaluation and treatment of nephrolithiasis in the age of lithotripsy. SEM UROL 1994;12:51.

A 65-year-old post-menopausal woman with decreased bone density develops her third calcium oxalate renal calculus in five years. Metabolic evaluation reveals a mildly elevated urinary calcium after calcium loading, consistent with Type I absorptive hypercalciuria. The most appropriate treatment is:

A sodium cellulose phosphate.

B orthophosphate.

C hydrochlorothiazide.

D potassium citrate.

E magnesium oxide.

A five-year-old girl has developed daytime wetting and is still wet at night. She has had two UTIs with dysuria and frequency. Her renal ultrasound shows mild-moderate bilateral hydronephrosis. She has a red birthmark on her lower spine, just above the gluteal cleft. The test most likely to identify the cause of her wetting is:

B: "MRI scan." is correct.

This girl has secondary incontinence with hydronephrosis. The dermal-vascular malformation of her lower spine raises the suspicion of a spinal cord problem, most likely spinal cord tethering leading to neurogenic bladder dysfunction. An MRI is most likely to yield the underlying cause of her wetting. A VCUG is also needed to rule out reflux and assess bladder emptying, but this is unlikely to determine the cause of her wetting.

Bellinger MF: Myelomeningocele and neuropathic bladder, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, 1996, chap 53.

A five-year-old girl has developed daytime wetting and is still wet at night. She has had two UTIs with dysuria and frequency. Her renal ultrasound shows mild-moderate bilateral hydronephrosis. She has a red birthmark on her lower spine, just above the gluteal cleft. The test most likely to identify the cause of her wetting is:

A VCUG.

B MRI scan.

C cystoscopy.

D MAG-3 diuretic renogram.

E radionuclide cystogram.

A 40-year-old man has grand mal seizures, gross hematuria, and bilateral flank masses. His blood pressure is 180/120 mm Hg. The patient is mentally retarded. An IVP reveals enlarged kidneys with calyceal deformities bilaterally. The BUN and serum creatinine are normal. The most likely diagnosis is:

C: "tuberous sclerosis." is correct.

Tuberous sclerosis is classically described as a triad consisting of seizures (80% of cases), mental retardation (60% of cases) and adenoma sebaceum (75% of cases). The kidneys of these patients may have cysts, angiomyolipomas, or both. Angiomyolipomas occur in 40%-80% of patients and frequently cause hematuria.

Glassberg KI: Renal dysplasia, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 59, pp 1757-1813.

A 40-year-old man has grand mal seizures, gross hematuria, and bilateral flank masses. His blood pressure is 180/120 mm Hg. The patient is mentally retarded. An IVP reveals enlarged kidneys with calyceal deformities bilaterally. The BUN and serum creatinine are normal. The most likely diagnosis is:

A autosomal dominant polycystic kidney disease.

B von Hippel-Lindau disease.

C tuberous sclerosis.

D Sturge-Webber syndrome.

E bilateral renal cell carcinoma with cerebral metastases.

Nephrogenic adenoma of the bladder is associated with:

E: "prior bladder injury." is correct.

Nephrogenic adenomas of the bladder are found usually in men and are associated with a prior history of bladder injury or chronic urinary tract infection. Nephrogenic adenomas are not associated with cystitis glandularis and associated only infrequently with bladder malignancies.

Saluja S, Lazzarini KM, Smith RC: Inflammation of the urinary bladder, in Pollack HM, McClellan BL (eds): CLINICAL UROGRAPHY, ed 2. Philadelphia, WB Saunders Co, 2000, vol 1, chap 22, p 1037.

Nephrogenic adenoma of the bladder is associated with:

A a higher incidence in women.

B CMV infection.

C adenocarcinoma of the bladder.

D cystitis cystica.

E prior bladder injury.

Luteinizing hormone (LH)-timed intrauterine insemination would most likely benefit subfertile couples with:

C: "cervical stenosis and low semen volume." is correct.

The cervical mucus is a major barrier to sperm that are poorly motile in the oligospermic man. From a naive viewpoint it would seem that bypassing this biological barrier by intrauterine insemination would be highly successful form of therapy for the subfertile man. Motility and transport though the cervical mucus represent only a small portion of the many complex functions of which sperm must be capable for fertilization and early embryonic development to occur. Therefore, it is not surprising that intrauterine insemination is not effective universally in couples with male factor infertility. The placement of sperm directly into the uterine cavity, carefully timed to ovulation, will not compensate for acrosomal defects and abnormalities of sperm-egg interaction, which are common in men with oligospermia. Nevertheless, sperm processing and intrauterine insemination can have an appropriate role in the management of carefully selected subfertile couples. It is an ideal form of therapy for cervical factor infertility and for men with retrograde ejaculation and significant semen volume abnormalities. Men with significant levels of antisperm antibodies and fewer than 2 million motile sperm after washing are not likely to achieve conception with intrauterine insemination.

Schlegel PN: Techniques of assisted reproduction, in Bahnson R (ed): MANAGEMENT OF UROLOGIC DISORDERS. London, Mosby Year Book, 1994, chap 28.

Luteinizing hormone (LH)-timed intrauterine insemination would most likely benefit subfertile couples with:

A significant levels of male antisperm antibodies.

B severe oligospermia.

C cervical stenosis and low semen volume.

D asthenospermia.

E cervical incompetence.

An otherwise healthy 62-year-old man undergoes radical cystectomy and ileal neobladder for invasive bladder cancer. Three weeks post-operatively he complains of watery stools and a cystogram demonstrates a fistula between the neobladder and small intestine. He is afebrile, has no abdominal tenderness, and there is no sign of intraperitoneal extravasation. Both the transurethral catheter and suprapubic tube irrigate freely. The best management is:

B: "low residue diet." is correct.

Neobladder enteric fistulas occur rarely after orthotopic urinary diversion. In a healthy, nontoxic patient with no sign of abdominal sepsis a trial of nonoperative repair is indicated initially. Small fistulas may heal with simple dietary modification such as a low residue diet. Larger or persistent fistulas may require the patient to be NPO and treated with intravenous TPN. Operative repair is indicated for persistent fistulas or in the acutely ill patient.

Hautman RE, de Petrriconi R, Gottfried H-W, et al: The ileal neobladder: Complications and functional results in 363 patents after 11 years of follow-up. J UROL 1999;161:422.

An otherwise healthy 62-year-old man undergoes radical cystectomy and ileal neobladder for invasive bladder cancer. Three weeks post-operatively he complains of watery stools and a cystogram demonstrates a fistula between the neobladder and small intestine. He is afebrile, has no abdominal tenderness, and there is no sign of intraperitoneal extravasation. Both the transurethral catheter and suprapubic tube irrigate freely. The best management is:

A replace the urethral catheter with a larger catheter.

B low residue diet.

C percutaneous nephrostomies.

D somatostatin.

E operative repair.

A 45-year-old man has two days of perineal discomfort, dysuria, urinary frequency, fever, and difficulty voiding. Urinalysis reveals bacteruria and pyuria. Physical examination reveals an enlarged prostate. He has a history of four symptomatic E. coli urinary tract infections over the past year. He finished his last course of antibiotics one week ago. Before antibiotic treatment is restarted, which culture should be obtained:

A: "mid-stream urine." is correct.

This man likely has chronic bacterial prostatitis. This is usually manifested by recurring recurrent infections with the same organism. While lower urinary tract bacterial localization is helpful in identifying the prostate as a nidus of infection if the urine is sterile, it is useless if there is bacteruria since all specimens will grow large numbers of bacteria. This man now has symptomatic bacteruria and his infection cannot be localized. If localization of the prostate is desired, the urine should be sterilized (perhaps with nitrofurantoin for three days) and then initial voided, mid-stream and post-prostatic massage urinary specimen should be obtained along with the prostatic fluid specimen.

Nickel JC, Bruce AW, Reid G: Pathogenesis, diagnosis and treatment of the prostatitis syndromes, in Krane RJ, Siroky MD, Fitzpatrick J (eds): CLINICAL UROLOGY. Philadelphia, JB Lippincott Co, 1994, pp 925-938.

A 45-year-old man has two days of perineal discomfort, dysuria, urinary frequency, fever, and difficulty voiding. Urinalysis reveals bacteruria and pyuria. Physical examination reveals an enlarged prostate. He has a history of four symptomatic E. coli urinary tract infections over the past year. He finished his last course of antibiotics one week ago. Before antibiotic treatment is restarted, which culture should be obtained:

A mid-stream urine.

B urine by suprapubic aspiration.

C expressed prostatic fluid.

D pre- and post-prostatic massage voided urine and prostatic fluid.

E initial voided urine.

The most important factor in maintaining continence after radical prostatectomy is preservation of the:

D: "external sphincter." is correct.

While preservation of the bladder neck, nervi erigentes, and the size of the bladder neck have all been associated with continence, the only factor which is generally accepted as being related to urinary control after radical prostatectomy is preservation of the external sphincter.

Klein EA: Modified apical dissection for early continence after radical prostatectomy. PROSTATE 1993;22(3):217-223.

The most important factor in maintaining continence after radical prostatectomy is preservation of the:

A nervi erigentes.

B bladder neck.

C puboprostatic ligaments.

D external sphincter.

E levator ani.

In addition to bladder wall fibrosis, systemic cyclophosphamide therapy may result in:

D: "transitional cell carcinoma." is correct.

Many series have demonstrated that patients who have received cyclophosphamide are at a significantly higher risk of developing carcinoma of the bladder. The average risk of patients who received therapy for non-Hodgkin's lymphoma was 4.5 -fold higher than average. Patients who received higher doses had a 14.5-fold increased risk. A review of 12 patients with cyclophosphamide-associated bladder cancer found all to be of high grade. In this series, conservative management (TUR) was associated with a high mortality rate and long-term survival was best in patients treated with early radical cystectomy.

Fernandes ET, Manivel JC, Reddy PK, Ercole CJ: Cyclophosphamide associated bladder cancer - a highly aggressive disease: An analysis of 12 cases. J UROL 1996;156:1931-1933.

In addition to bladder wall fibrosis, systemic cyclophosphamide therapy may result in:

A chronic renal insufficiency.

B renal papillary necrosis.

C chronic renal hematuria.

D transitional cell carcinoma.

E chronic prostatitis.

Furosemide (Lasix) acts primarily by inhibiting sodium reabsorption in the:

C: "ascending limb of Henle's loop." is correct.

Furosemide (Lasix) is a loop diuretic. Loop diuretics act mainly by inhibiting the Na+-K+-2Cl- cotransport system in the thick ascending limb of Henle's loop. This results in inhibiting sodium reabsorption and a solute diuresis.

Eades SK, Christensen ML: The clinical pharmacology of loop diuretics in the pediatric patient. PED NEPHR 1998;12:603-616.

Furosemide (Lasix) acts primarily by inhibiting sodium reabsorption in the:

A collecting duct.

B proximal tubule.

C ascending limb of Henle's loop.

D descending limb of Henle's loop.

E distal tubule.

A 25-year-old woman reports eight urinary tract infections in the past year, all of which are associated with lower urinary tract symptoms only. Which of the following is most likely to be a risk factor:

E: "spermicide use." is correct.

Studies of risk factors for recurrent urinary tract infection demonstrate that spermicide use increases urinary tract infections by decreasing normal vaginal flora and decreasing vaginal pH. Several studies have demonstrated the other four choices are not common risk factors. Douching is rarely significantly increased in patients with recurrent urinary tract infections. Tampon use, parity, and exercise are not risk factors for recurrent cystitis.

Hooton TM, Scholes D, Hughes JP, et al: A prospective study of risk factors for symptomatic urinary tract infections in young women. NEJM 1996;335:468-474.

A 25-year-old woman reports eight urinary tract infections in the past year, all of which are associated with lower urinary tract symptoms only. Which of the following is most likely to be a risk factor:

A tampon use.

B parity.

C douching.

D daily bicycle riding.

E spermicide use.

Which of the following is most likely to cause painful gynecomastia:

D: "bicalutamide." is correct.

Breast tenderness and enlargement during hormonal therapy for prostate cancer is due to an altered ratio of serum estrogens and testosterone. Leuprolide inhibits pituitary LH release so there is no rise in serum estrogens. Ketoconazole inhibits androgen and estrogen synthesis. Bicalutamide inhibits both end organ and central androgen receptors so that both LH and androgen levels increase with loss of negative feedback inhibition.

Bales GT, Chodak GW: A controlled trial of bicalutamide versus castration in patients with advanced prostate cancer. UROL 1996;47(1A):38-43.

Schellhammer P, Sharifi R, Block N, et al: A controlled trial of bicalutamide versus flutamide, each in combination with luteinizing hormone-releasing hormone analogue therapy, in patients with advanced prostate cancer. Casodex Combination Study Group. UROL 1995;45:745-752.

Which of the following is most likely to cause painful gynecomastia:

A leuprolide.

B leuprolide and flutamide.

C ketoconazole.

D bicalutamide.

E finasteride.

A six-year-old boy sustains blunt abdominal trauma in a motor vehicle accident. He has tender ecchymosis on the right flank. Blood pressure is stable. His urine sediment has 10 RBC/hpf. The next step is:

A: "CT scan." is correct.

All children with suspected renal trauma and any degree of hematuria should be evaluated radiographically. In contrast, adults with gross hematuria or microscopic hematuria plus hypotension are candidates for imaging. One reason for the discrimination is that large amounts of catecholamines released in injured children may sustain blood pressure in the face of hypovolemia. The CT scan is the most useful imaging modality in this situation.

Medica J, Caldamone A: Pediatric renal trauma: Special considerations. SEM UROL 1995;13:73.

A six-year-old boy sustains blunt abdominal trauma in a motor vehicle accident. He has tender ecchymosis on the right flank. Blood pressure is stable. His urine sediment has 10 RBC/hpf. The next step is:

A CT scan.

B IVP.

C ultrasonography.

D cystogram.

E observation.

The most life-threatening electrolyte abnormality that develops during the diuretic phase of acute tubular necrosis is:

D: "hypokalemia." is correct.

During the massive urinary sodium losses occurring during the diuresis phase of ATN, potassium is also lost resulting in life-threatening hypokalemia. During diuresis the Na+/k+ pump is overwhelmed and exchange fails to occur.

Vander AJ: RENAL PHYSIOLOGY, ed 6. New York, McGraw-Hill Inc, 1995, pp 89-114.

The most life-threatening electrolyte abnormality that develops during the diuretic phase of acute tubular necrosis is:

A hyponatremia.

B hypomagnesemia.

C hypocalcemia.

D hypokalemia.

E hyperkalemia.

Men with a history of infertility and a low volume (0.5-1.0 ml) of noncoagulating ejaculate on semen analysis most often have:

D: "bilateral absence of the vas." is correct.

The mean semen volume for normal men is 3 cc. The prostate and seminal vesicles provide more than 98% of the total volume of the ejaculate in man. Thus, very small ejaculates reflect either only prostatic fluid (with ejaculatory duct obstruction preventing seminal vesicle fluid from entering the ejaculate) or an abnormality in the physiology of these androgen-dependent organs. The seminal vesicles are responsible for the property of coagulation in the semen. Testicular failure does not affect semen volume. Men with congenital absence of the vas deferens rarely have significant volumes of seminal vesicle secretions in the ejaculate. This is a common cause of azoospermia. Vasal obstruction would not noticeably decrease the ejaculate volume. Men with retrograde ejaculation rarely have any antegrade ejaculate unless sperm are present in the antegrade semen.

Sigman M, Howards SS: Male infertility, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 43, pp 1287-1300; 1308-1319.

Men with a history of infertility and a low volume (0.5-1.0 ml) of noncoagulating ejaculate on semen analysis most often have:

A retrograde ejaculation.

B prostatic hypoplasia.

C primary testicular failure.

D bilateral absence of the vas.

E panhypopituitarism.

A dorsal lumbotomy is most appropriate for children with:

C: "end-stage nephrosclerosis." is correct.

A dorsal lumbotomy offers an excellent approach to deal with small, previously unoperated kidneys with benign disease. The kidney with end-stage nephrosclerosis provides an excellent candidate for posterior lumbotomy.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 14, p 509.

A dorsal lumbotomy is most appropriate for children with:

A failed pyeloplasty.

B Wilms' tumor.

C end-stage nephrosclerosis.

D branched renal calculus.

E mesoblastic nephroma.

A three-year-old boy is anesthetized for a bilateral orchiopexy. Intra-operatively, his temperature is 104 degrees Fahrenheit, his heart rate is 180/minute, and he is noted to have dark venous blood. Arterial blood gas determinations include pH 7.10, pO2 88, and base deficit 5.7 mEq/l. The first step in treatment is:

C: "hyperventilate with oxygen and give dantrolene." is correct.

The patient has malignant hyperthermia. It is caused by an inherited muscle membrane disorder that results in an abnormal influx of intracellular calcium. The result is a hypermetabolic state. It is frequently seen with the use of suxamethonium and/or volatile halogenated anesthetic agents. Treatment includes stopping the inhalational anesthetic, hyperventilate with oxygen and administer Dantrolene. This has resulted in a dramatic improvement in mortality from 70% in the 1970's to 5% today.

Denborough M: Malignant hyperthermia. LANCET 1998;352:1131-1136.

A three-year-old boy is anesthetized for a bilateral orchiopexy. Intra-operatively, his temperature is 104 degrees Fahrenheit, his heart rate is 180/minute, and he is noted to have dark venous blood. Arterial blood gas determinations include pH 7.10, pO2 88, and base deficit 5.7 mEq/l. The first step in treatment is:

A stop halothane, administer nitrous oxide, and give phenoxybenzamine.

B hyperventilate with oxygen and give propranolol.

C hyperventilate with oxygen and give dantrolene.

D hyperventilate with oxygen and pack patient in ice.

E stop halothane, administer nitrous oxide, and give atropine.

In patients with organic erectile dysfunction, the best response to sildenafil citrate is achieved in those with:

E: "spinal cord injury." is correct.

Improved erections with sildenafil treatment were noted in 70% of men with organic erectile dysfunction (ED) and in over 80% of men with psychogenic ED. When the response is stratified by specific disease states, the best response rates are noted in the spinal cord injury group (83%). The response rates for the other groups range from 50-70%.

Padma-Nathan H, Shabsigh R: Sildenafil citrate: A review. AUA UPDATE SERIES 1999, vol 18, lesson 35.

In patients with organic erectile dysfunction, the best response to sildenafil citrate is achieved in those with:

A vascular disease.

B history of radical prostatectomy.

C diabetes mellitus.

D history of TURP.

E spinal cord injury.

The function of the testicular germinal epithelium is best evaluated by measuring the serum level of:

C: "FSH." is correct.

Although the role of FSH in spermatogenesis is somewhat controversial, it is certainly safe to say that FSH levels are increased in proportion to the loss of testicular germ cells. LH and testosterone concentrations generally remain within the normal range unless there has been extremely severe testicular failure.

Schlegel PN, Chang TSK: Physiology of male reproduction: The testis, epididymis, and ductus deferens, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 42, pp 1254-1286.

The function of the testicular germinal epithelium is best evaluated by measuring the serum level of:

A LH.

B hCG.

C FSH.

D testosterone.

E dihydrotestosterone.

Marked bilateral hydronephrosis first diagnosed antenatally is now confirmed with an ultrasound in a newborn female infant. A VCUG demonstrates no reflux and a normal urethra. The infant is voiding. The next step is:

B: "nuclear renal scan." is correct.

In this setting, one must determine if the hydronephrosis is causing significant obstruction and if so, at what level in the urinary tract. The ultrasound may show ureteral dilation which suggests obstruction at the ureterovesical junction, but the renal scan will determine the degree of function and obstruction. The ideal timing for performing this study is during the second month of life when the GFR has increased several fold. The IVP may be useful after the first week of life, but does not provide differential renal function. Antegrade studies are not needed at this point and should not be performed prior to the less invasive MAG-3 renal scan. Bilateral retrogrades require an anesthetic and do not provide information on renal function or the degree of obstruction.

Mandell J, Peters CA, Retik AB: Perinatal urology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed. 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 52, pp 1601-1618.

Chevalier RL, Howards SS: Renal function in the fetus, neonate, and child, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 55, pp 1655-1668.

Marked bilateral hydronephrosis first diagnosed antenatally is now confirmed with an ultrasound in a newborn female infant. A VCUG demonstrates no reflux and a normal urethra. The infant is voiding. The next step is:

A IVP.

B nuclear renal scan.

C antegrade studies.

D bilateral retrogrades.

E repeat ultrasound in two months.

The bowel segment associated with the highest gastrointestinal potassium loss is:

B: "cecum." is correct.

It is important to know the electrolyte content of the fluid from the various bowel segments in order to replace abnormal fluid losses from these segments. The highest potassium gastrointestinal losses are from the cecum, followed by the stomach and ileum.

McDougal WS: The kidney, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St Louis, Mosby Year Book, 1996, vol 1, chap 10, p 519.

The bowel segment associated with the highest gastrointestinal potassium loss is:

A transverse colon.

B cecum.

C ileum.

D jejunum.

E stomach.

The primary role of the macrophage in organ or tissue rejection is:

A: "production of interleukin-1." is correct.

Macrophages and other antigen-presenting cells are among the first inflammatory cells entering the allograft after transplantation. In addition to presentation of donor antigen, macrophage production of interleukin-1 (IL-1) is the primary stimulant for T lymphocyte IL-2 production, which leads to proliferation of activated T cells. The immunosuppressive effects of corticosteroids in organ transplantation are principally a result of suppression of macrophage IL-1 production. Gamma interferon is produced by T cells, and macrophages do not produce cytotoxic antibodies, stimulate suppressor cells, or release lymphokines.

Suthanthiran M, Morris RM, Strom TB: Transplantation immunobiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 491-504.

The primary role of the macrophage in organ or tissue rejection is:

A production of interleukin-1.

B production of gamma-interferon.

C stimulation of suppressor T cells.

D release of cytotoxic antibodies.

E release of macrophage-stimulating lymphokines.

A 50-year-old man has abrupt onset of hypertension (185/110 mm Hg). No abdominal bruit is heard on physical examination. The serum creatinine is 1.2 mg/dl and the serum potassium is 3.3 mEg/l. The next step is:

C: "captopril renogram." is correct.

The young age, acute onset of the hypertension and hypokalemia are all high risk factors for renovascular hypertension (RVH). Based upon these risk factors, peripheral renin activity measurement is not necessary to pursue the diagnosis of RVH. An elevated aldosterone may be secondary to increasing levels of renin or primary hyperaldosteronism. The next step is a captopril renogram. If positive, renal vein renins +/- captopril are measured.

Vaughan ED, Sosa RE: Renal vascular hypertension and other vascular diseases, in Walsh PC, Retik TA, Vaughan, ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1 chap 11, p 423.

A 50-year-old man has abrupt onset of hypertension (185/110 mm Hg). No abdominal bruit is heard on physical examination. The serum creatinine is 1.2 mg/dl and the serum potassium is 3.3 mEg/l. The next step is:

A ambulatory peripheral plasma renin activity.

B aldosterone level.

C captopril renogram.

D renal vein renin measurements.

E renal vein renin measurements before and after captopril.

A 60-year-old woman develops vaginal leakage of urine and is found to have a ureterovaginal fistula five days after an abdominal hysterectomy. A retrograde ureterogram demonstrates the fistula 2-3 cm above the bladder. Attempts at retrograde and antegrade passage of a ureteral stent are unsuccessful. The most appropriate management is:

B: "ureteroneocystostomy." is correct.

In a healthy patient, fistula repair may be undertaken early. As all attempts at ureteral catheterization have been unsuccessful, the fistula will not likely heal with observation. Repair may be undertaken. The more distal ureter may be injured as well, and repair can be accomplished easily with ureteroneocystostomy. A bladder flap is not necessary given the very distal location of the fistula.

Leng WW, Amundsen CL, McGuire EJ: Management of female genitourinary fistulas: Transvesical or transvaginal approach? J UROL 1998;150:1995-1999.

Selzman AA, Spirnak JP, Kursh ED: The changing management of ureterovaginal fistulas. J UROL 1995;153:6263.

A 60-year-old woman develops vaginal leakage of urine and is found to have a ureterovaginal fistula five days after an abdominal hysterectomy. A retrograde ureterogram demonstrates the fistula 2-3 cm above the bladder. Attempts at retrograde and antegrade passage of a ureteral stent are unsuccessful. The most appropriate management is:

A observation.

B ureteroneocystostomy.

C ureteroureterostomy.

D percutaneous nephrostomy.

E bladder flap ureterovesicoplasty.

A 23-year-old woman suffers a complex pelvic fracture in a motor vehicle accident. A cystogram reveals limited extraperitoneal extravasation of contrast at the bladder neck. The bladder is compressed by a pelvic hematoma and an anterior vaginal laceration is also present. No other injuries are noted and the patient is hemodynamically stable. Treatment should be:

E: "repair of vaginal and bladder lacerations." is correct.

Urethral injuries in women are rare. The urethra is short, mobile, and protected by the pubis in women. Associated vaginal lacerations are common with urethral injuries. Such injuries should be repaired immediately to preserve the functional integrity of the bladder neck. The vaginal injury should be closed, as well, to prevent a vesicovaginal fistula.

Greibling TL, Kreder KJ: Urethral reconstruction after pelvic fracture with urethral disruption: The gold standard. SEM UROL 1995;13:45-55.

A 23-year-old woman suffers a complex pelvic fracture in a motor vehicle accident. A cystogram reveals limited extraperitoneal extravasation of contrast at the bladder neck. The bladder is compressed by a pelvic hematoma and an anterior vaginal laceration is also present. No other injuries are noted and the patient is hemodynamically stable. Treatment should be:

A urethral catheter drainage.

B percutaneous suprapubic cystostomy.

C open bladder repair.

D suprapubic cystostomy and perivesical drainage.

E repair of vaginal and bladder lacerations.

When performing radical prostatectomy, which best describes the location of the neurovascular bundles in relation to the urethra, prostate, and seminal vesicles:

Uretha	Prostate	Seminal Vesicle

E: " lateral posterolateral lateral" is correct.

The neurovascular bundles can be found lateral to the seminal vesicles, posterolateral to the prostate, and lateral to the urethra, and can be damaged in any of these areas by indiscriminate dissection.

Eastham JA, Scardino PT: Radical prostatectomy for clinical stage T1 and T2 prostate cancer, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY, ed 2. Baltimore, Williams & Wilkins, 2000, chap 42B, pp 722-738.

When performing radical prostatectomy, which best describes the location of the neurovascular bundles in relation to the urethra, prostate, and seminal vesicles:

	Uretha	Prostate	Seminal Vesicle
A	posterior	lateral	lateral
B	lateral	posterolateral	medial
C	lateral	lateral	lateral
D	posterior	posterolateral	medial
E	lateral	posterolateral	lateral

A 60 kg, 40-year-old woman with recurrent calcium oxalate nephrolithiasis has normal serum calcium and phosphorus levels. Twenty-four hour urine parameters are:

Calcium	Creatinine	Oxalate	Citrate	Uric Acid
350 mg	1800 mg	50 mg	1000 mg	800 mg

The next step is:

E: "recollect urine." is correct.

Urinary creatinine provides an assessment of the completeness of a urine collection. In women, it should be 14-21 mg/kg/day and, in men, it should be 20-27 mg/kg/day. This individual over-collected as her urinary creatinine excretion was 30 mg/kg/day. Repeating a urine collection would be the most appropriate step.

Lemann J Jr: Calcium and phosphate metabolism: An overview in health and in calcium stone formers, in Coe FL, Favus MJ, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott-Raven Publishers, 1996, chap 11, p 264.

A 60 kg, 40-year-old woman with recurrent calcium oxalate nephrolithiasis has normal serum calcium and phosphorus levels. Twenty-four hour urine parameters are:

Calcium	Creatinine	Oxalate	Citrate	Uric Acid
350 mg	1800 mg	50 mg	1000 mg	800 mg

The next step is:

A hydrochlorothiazide therapy.

B allopurinol therapy.

C pyridoxine therapy.

D creatinine clearance.

E recollect urine.

Bacteriuria associated with pregnancy is diagnosed most frequently:

A: "in the first trimester." is correct.

The prevalence of bacteriuria during pregnancy is approximately 5%, a prevalence similar to non-pregnant women. Bacteriuria in pregnant women correlates with age, sexual activity, parity and low socioeconomic status. It is most commonly diagnosed in the first trimester.

Sant GR, Meares EM: Urinary tract infections, in Sant G (ed): PATHOPHYSIOLOGIC PRINCIPLES OF UROLOGY. Blackewell Scientific Publications, 1994.

Bacteriuria associated with pregnancy is diagnosed most frequently:

A in the first trimester.

B in the second trimester.

C in the third trimester.

D immediately postpartum.

E equally throughout pregnancy.

In the hormonal treatment of disseminated prostate cancer, the drug with the most rapid onset of action in inhibiting testosterone production by the testis is:

D: "ketoconazole." is correct.

Ketoconazole inhibits the enzyme 17,20 desmolase, thereby preventing the conversion of cholesterol to testosterone. Ketoconazole acts rapidly. Castrate levels are reached after 48 hours of treatment with a dose of 400 mg every eight hours. None of the other agents used to lower serum testosterone (LH-RH agonists or DES) acts as rapidly.

Stock JA, Kaplan GW: Keotconzaole for prevention of postoperative penile erection. UROL 1995;45:308-309.

In the hormonal treatment of disseminated prostate cancer, the drug with the most rapid onset of action in inhibiting testosterone production by the testis is:

A leuprolide.

B aminoglutethimide.

C diethylstilbestrol.

D ketoconazole.

E flutamide.

A patient with bladder outlet obstruction secondary to BPH has an elevated serum creatinine, bilateral ureteral dilation, and a residual urine of 1200 ml. There is Grade III/V vesicoureteral reflux on a filling video CMG. The renal function abnormalities and ureteral changes are related to:

E: "sustained high filling pressure." is correct.

Renal and ureteral impairment in BPH are related to high pressure chronic retention. High voiding pressures if not sustained for long periods do not usually induce ureteral changes nor renal functional impairment. While compression of the ureter at the U.V. junction might impair ureteral urine delivery to a degree, sustained bladder pressure elevations are required for the upper tract abnormalities described. Vesicoureteral reflux also results from the high pressures.

Gulmi FA, Felsen D, Vaughan ED Jr: Pathophysiology of urinary tract obstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1 , chap 9, pp 342-386.

A patient with bladder outlet obstruction secondary to BPH has an elevated serum creatinine, bilateral ureteral dilation, and a residual urine of 1200 ml. There is Grade III/V vesicoureteral reflux on a filling video CMG. The renal function abnormalities and ureteral changes are related to:

A compression of the ureter at the ureterovesical junction.

B the development of high grade reflux.

C increased urethral resistance.

D high voiding pressure.

E sustained high filling pressure.

Transient urinary incontinence that occurs with an increase in intra-abdominal pressure in women under 50 years of age is most frequently associated with:

C: "urethral hypermobility." is correct.

While shortened urethral length and angle changes have been related to stress incontinence, these findings are less consistent than hypermobility. Stress incontinence in younger women is not usually associated with low urethral pressures, and there is no relationship between genital prolapse or urethral prolapse and incontinence; external sphincter activity does not have a consistent relationship with stress urinary incontinence.

Raz, S, Stothers L, Chopra A: Vaginal reconstructive surgery for incontinence and prolapse, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 32, pp 1059-1094.

Transient urinary incontinence that occurs with an increase in intra-abdominal pressure in women under 50 years of age is most frequently associated with:

A low resting urethral pressure.

B dysfunction of the external striated sphincter.

C urethral hypermobility.

D a cystocele, rectocele, and uterine prolapse.

E shortened urethral length and loss of the angle of urethral inclination.

The principal advantage of the conjoined ureteroileal anastomosis (Wallace technique) as compared to the standard Bricker technique of anastomosis is decreased:

E: "anastomotic stricture." is correct.

The principal advantage of the conjoined technique of ureteroileal anastomosis is the larger anastomosis to the ileum, thereby decreasing the risk of ureteral anastomotic stenosis. This technique does not decrease operative time, stone formation, pyelonephritis, or reflux.

McDougal WS: Use of intestinal segments in the urinary tract: Basic principles, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 2614-2615.

The principal advantage of the conjoined ureteroileal anastomosis (Wallace technique) as compared to the standard Bricker technique of anastomosis is decreased:

A operative time.

B stone formation.

C ureteral reflux.

D pyelonephritis.

E anastomotic stricture.

During exploration of a retroperitoneal hematoma from blunt renal trauma, the best anatomic landmark for the left renal artery is the:

B: "left renal vein." is correct.

The left renal artery originates from the aorta just lateral and superior to the left renal vein. Identifying the left renal vein as it crosses the aorta provides the best anatomic landmark for the left renal artery.

McAninch JW: Renal injuries, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, chap 11A, p 549.

During exploration of a retroperitoneal hematoma from blunt renal trauma, the best anatomic landmark for the left renal artery is the:

A superior mesenteric artery.

B left renal vein.

C right renal artery.

D left gonadal vein.

E left ureter.

A 45-year-old man has a large renal cell carcinoma. The SGOT, alkaline phosphatase, LDH, and alpha-2 -globulin levels are increased and the prothrombin time is prolonged. The liver is diffusely enlarged but there are no intrahepatic filling defects. The most likely explanation for these findings is:

A: "hepatotoxic effect of the tumor." is correct.

Abnormal liver function tests that appear to be reversible with tumor removal are found in up to 15% of patients who have renal cell carcinoma. This has been referred to as Stauffer's syndrome. These abnormal tests may recur with subsequent development of a metastasis again resolving with tumor resection. The mechanism is unknown although a toxic effect on liver cells is most likely. Amyloidosis develops in 2% to 3% of patients with renal cell carcinoma, and there is frequently renal involvement associated with the nephrotic syndrome. Hepatic amyloidosis is a possible cause of disordered liver function tests but is uncommon. Liver metastases are a late occurrence and unlikely in the absence of other secondary deposits. Hepatitis may be considered but this is usually diagnosed by other laboratory tests. Renal carcinoma rarely causes hepatic vein obstruction.

deKernion JB, Belldegrun A: Renal tumors, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 76, pp 2283-2326.

A 45-year-old man has a large renal cell carcinoma. The SGOT, alkaline phosphatase, LDH, and alpha-2-globulin levels are increased and the prothrombin time is prolonged. The liver is diffusely enlarged but there are no intrahepatic filling defects. The most likely explanation for these findings is:

A hepatotoxic effect of the tumor.

B liver metastases.

C amyloidosis.

D tumor thrombus obstructing hepatic vein.

E acute hepatitis.

The rapid intravenous infusion of a large dose of furosemide (Lasix) in an azotemic patient may result in:

A: "auditory impairment." is correct.

A large dose of Lasix administered in the presence of impaired renal function or in association with aminoglycoside antibiotics is more likely to cause auditory impairment (which may be permanent) than if administered in the presence of normal renal function or in the absence of aminoglycosides. The other abnormalities listed would not occur acutely.

Edelstein CL, Alkhunaizi A, Yaqoob MM, et al: Etiology, pathophysiology, and management of renal failure, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 8, pp 315-341.

The rapid intravenous infusion of a large dose of furosemide (Lasix) in an azotemic patient may result in:

A auditory impairment.

B hypomagnesemia.

C hypoglycemia.

D hypouricemia.

E hypercalcemia.

An infant has the prenatal diagnosis of a solid abdominal mass that spontaneously regresses on serial postnatal ultrasounds during the first year of life. The most likely diagnosis is:

C: "neuroblastoma." is correct.

Of the tumors listed, neuroblastoma is the only one that is frequently associated with spontaneous regression. Autopsy studies show a much higher rate of incidental neuroblastoma than is seen clinically. Because of the regression (or maturation to ganglioneuroma) some infants with neuroblastoma should not be treated. This is particularly true for those with Stage IV-S, characterized by multiple sites of metastases, including bone marrow, liver and/or skin lesions.

Holgersen LO, Subramanian S, Kirpekar M, Mootabar H, Marcus JR: Spontaneous resolution of antenatally diagnosed adrenal masses. J PED SUR 1996;Jan31(1):153-155.

An infant has the prenatal diagnosis of a solid abdominal mass that spontaneously regresses on serial postnatal ultrasounds during the first year of life. The most likely diagnosis is:

A mesoblastic nephroma.

B Wilms' tumor.

C neuroblastoma.

D sacrococcygeal teratoma.

E retroperitoneal yolk sac tumor.

The optimal dose of 30% iodinated contrast medium for an intraoperative IVP in a non-obese adult patient suspected of having renal trauma is:

C: "2.0 ml/kg." is correct.

Intraoperative IVP is performed in unstable trauma patients who can't undergo a radiographic evaluation in the emergency room. A film is taken ten minutes after contrast is administered intravenously. A 2 ml/kg dose of contrast medium is recommended for this study.

Morey AF, McAninch JW, Tiller BK, Duckett CP, Carroll PR: Single shot intraoperative excretory urography for the immediate evaluation of renal trauma. J UROL 1999;161:1088-1092.

The optimal dose of 30% iodinated contrast medium for an intraoperative IVP in a non-obese adult patient suspected of having renal trauma is:

A .5 ml/kg.

B 1.0 ml/kg.

C 2.0 ml/kg.

D 2.5 ml/kg.

E 3.0 ml/kg.

A 36-year-old woman has suffered from recurrent cystitis for several years. An IVP was normal two years ago. Now she is treated with trimethoprim-sulfa while a urine culture is pending. The culture demonstrates Proteus mirabilis, sensitive to ampicillin, but not to trimethoprim or sulfa. She is treated for eight days with ampicillin 250 mg q.i.d. A catheterized urine culture obtained ten days after the ampicillin is discontinued again demonstrates Proteus mirabilis sensitive to ampicillin and cephalexin. The next step is:

D: "obtain an IVP." is correct.

Refractory or relapsing urinary tract infection after reasonable antimicrobial therapy should make the physician suspect a complicated infection. In a patient with a history of recurrent cystitis and relapsing urinary tract infection with Proteus mirabilis, the physician should further suspect the possibility of infected calculi (i.e. struvite calculi associated with urease producing bacteria such as Proteus sp.). Upper urinary tract imaging, such as IVP, is indicated in this case.

Schaeffer AJ: Infections of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 15, pp 533-614.

A 36-year-old woman has suffered from recurrent cystitis for several years. An IVP was normal two years ago. Now she is treated with trimethoprim-sulfa while a urine culture is pending. The culture demonstrates Proteus mirabilis, sensitive to ampicillin, but not to trimethoprim or sulfa. She is treated for eight days with ampicillin 250 mg q.i.d. A catheterized urine culture obtained ten days after the ampicillin is discontinued again demonstrates Proteus mirabilis sensitive to ampicillin and cephalexin. The next step is:

A restart ampicillin for 4-6 weeks.

B restart ampicillin for 10 days.

C begin cephalexin for 10 days.

D obtain an IVP.

E introital culture.

Which vessel is at greatest risk for injury during laparoscopic placement of an umbilical trocar:

D: "right common iliac artery." is correct.

The right common iliac artery lies close to the midline at the inferior umbilicus. Therefore, with placement of an umbilical trocar, the right common iliac artery is most at risk for puncture injury.

Bhoyrul S, Vierra MA, Nezhat CR, et al: Trocar injuries in laparoscopic surgery. J AM COLL SUR 2001;192:677-683.

Which vessel is at greatest risk for injury during laparoscopic placement of an umbilical trocar:

A right common iliac vein.

B vena cava.

C abdominal aorta.

D right common iliac artery.

E inferior mesenteric artery.

An 84-year-old woman with mild cognitive impairment has urge incontinence. She has a Grade I cystocele, residual urine of 50 cc, and a normal urinalysis. Her incontinence should initially be treated by:

E: "prompted voiding." is correct.

Kegel exercise and fluid restriction alone have not been shown to be effective in the long-term treatment of urinary incontinence in the geriatric population. The incidence and severity of side effects of the anticholinergic agents, especially imipramine, are significant in the geriatric population. Prompted time voiding, especially in those patients who have responded to a trial of prompted voiding, is most often associated with decreased incontinence episodes in the elderly.

Ouslander JG, Schnelle JF, Uman G, et al: Predictors of successful prompted voiding among incontinent nursing home residents. JAMA 1995;273:1366-1370.

An 84-year-old woman with mild cognitive impairment has urge incontinence. She has a Grade I cystocele, residual urine of 50 cc, and a normal urinalysis. Her incontinence should initially be treated by:

A oxybutynin.

B fluid restriction.

C imipramine.

D Kegel exercise.

E prompted voiding.

A 53-year-old man with a two year history of Peyronie's disease and erectile dysfunction non-responsive to oral medication undergoes color-flow Doppler ultrasound of the penis. After injection of 20 mcg of prostaglandin E1, he develops a partial erection with significant curvature. Peak flow velocity is 10 cm/sec in the right corporal artery and 2 cm/sec in the left. The most appropriate management is:

E: "placement of a penile prosthesis." is correct.

In addition to Peyronie's disease, this patient has significant cavernosal arterial disease, normal cavernosal peak flow velocity should be > 25 cm/sec. Plaque excision will not improve his arterial inflow and will leave him impotent. A phalloplasty (penile straightening) procedure would be less morbid than plaque excision. Certainly, placement of a penile prothesis or use of a vacuum-constrictor device would be appropriate treatment options. Cavernosography is an attempt to demonstrate venous leak and would not be helpful given the patient's arterial inflow disorder.

Lopez JA, Jarow JP: Penile vascular evaluation of men with Peyronie's disease. J UROL 1993;149:53.

A 53-year-old man with a two year history of Peyronie's disease and erectile dysfunction non-responsive to oral medication undergoes color-flow Doppler ultrasound of the penis. After injection of 20 mcg of prostaglandin E1, he develops a partial erection with significant curvature. Peak flow velocity is 10 cm/sec in the right corporal artery and 2 cm/sec in the left. The most appropriate management is:

A plaque excision and dermal graft inlay.

B Nesbit plication and pharmaco-injection therapy.

C cavernosography.

D pudendal arteriography.

E placement of a penile prosthesis.

Deletions of the short arm of chromosome 3 occur most frequently in association with:

E: "clear cell renal cell carcinoma." is correct.

Deletions of the short arm of chromosome 3 are characteristic of clear cell carcinomas, which are seen in sporadic cases of renal cell carcinoma and those associated with von Hippel-Lindau disease.

Wagner JR, Linehan WM: Molecular genetics of renal cell carcinoma. SEMIN UROL ONCOL 1996; 14:244-9.

Deletions of the short arm of chromosome 3 occur most frequently in association with:

A papillary renal cell carcinoma.

B angiomyolipoma.

C renal medullary carcinoma.

D oncocytoma.

E clear cell renal cell carcinoma.

A 25-year-old man with multiple sexual partners has a three-day history of purulent penile discharge. Gram negative intracellular diplococci are found on gram stain of a urethral swab. The best treatment is a single dose of:

C: "azithromycin." is correct.

CDC recommendations for treatment of genitourinary gonorrhea include all of the above agents except penicillin. However, up to 30% or more of men with gonorrhea will have concomitant chlamydial infections, so presumptive treatment of chlamydia is required as part of the therapy of gonococcal infections. Of the antibiotics listed, only azithromycin will treat chlamydia adequately.

Krieger JN: New sexually transmitted diseases treatment guidelines. J UROL 1995;154:209-213.

A 25-year-old man with multiple sexual partners has a three-day history of purulent penile discharge. Gram negative intracellular diplococci are found on gram stain of a urethral swab. The best treatment is a single dose of:

A penicillin G.

B amoxicillin.

C azithromycin.

D ciprofloxacin.

E ceftriaxone.

A 65-year-old man with lower urinary tract symptoms and an AUA Symptom Score of 18 is treated with terazosin. Six months later he develops hypertension. Which antihypertensive drug is contraindicated:

B: "verapamil." is correct.

Concomitant use of terazosin and calcium channel blockers, especially verapamil is dangerous and can precipitate severe hypotension.

Lepor H: Terazocin in the treatment of BPH, in Kirby RS, McConnell JD, Fitzpatrick JM, et al (eds): TEXTBOOK OF BENIGN HYPERPLASIA. Oxford, Isis Media, 1996, chap 25, p 279.

A 65-year-old man with lower urinary tract symptoms and an AUA Symptom Score of 18 is treated with terazosin. Six months later he develops hypertension. Which antihypertensive drug is contraindicated:

A hydrochlorothiazide.

B verapamil.

C metoprolol.

D losartan.

E enalapril.

A 76-year-old debilitated woman has had six episodes of asymptomatic bacteriuria treated with antimicrobial agents over the last year. The latest culture shows >100,000 E. coli cfu/ml. The organism is sensitive only to ciprofloxacin and intravenous agents. Treatment with ciprofloxacin will most likely:

E: "have no affect on health status." is correct.

Although several earlier studies suggest that a relationship might exist between bacteriuria and mortality in the aged, these observations have not been adequately substantiated even by some of the original investigators. A recent prospective cohort study combined with a controlled clinical trial of treatment of elderly women without urinary catheters demonstrated urinary tract colonization was not an independent risk factor for mortality and that treatment did not lower the mortality rate. Treatment potentially could increase morbidity by selecting for resistant organisms as well as adverse reactions to the drug including significant and serious allergic reactions.

Abrutyn E, Mossey J, Berlin JA, et al: Does asymptomatic bacteriuria predict mortality and does antimicrobial treatment reduce mortality in elderly ambulatory women? ANN INT MED 1994;120:827-833.

A 76-year-old debilitated woman has had six episodes of asymptomatic bacteriuria treated with antimicrobial agents over the last year. The latest culture shows >100,000 E. coli cfu/ml. The organism is sensitive only to ciprofloxacin and intravenous agents. Treatment with ciprofloxacin will most likely:

A reduce mortality.

B reduce morbidity.

C increase morbidity.

D improve performance status.

E have no affect on health status.

A 43-year-old man with renal failure due to chronic glomerulonephritis has been on maintenance hemodialysis for two years. He voids approximately 500 cc of urine per day. He now complains of the sudden onset of severe right flank pain which is associated with microhematuria. The most likely explanation is:

D: "urolithiasis." is correct.

Symptomatic urolithiasis occurs in 7% of the hemodialysis population with a male predominance of 3 to 1. These stones are usually composed of protein and calcium oxalate monohydrate. Approximately 20-50% of dialysis patients have asymptomatic calculi diagnosed by ultrasonographic or routine radiographic studies. The other diagnoses listed are all much more unlikely than urolithiasis.

Daudon M, Lacour B, Jungers P, et al: Urolithiasis in patients with end-stage renal failure. J UROL 1992;147:977.

A 43-year-old man with renal failure due to chronic glomerulonephritis has been on maintenance hemodialysis for two years. He voids approximately 500 cc of urine per day. He now complains of the sudden onset of severe right flank pain which is associated with microhematuria. The most likely explanation is:

A renal vein thrombosis.

B renal cell cancer.

C subcapsular renal hemorrhage.

D urolithiasis.

E papillary necrosis.

A 55-year-old man with marked irritative and obstructive voiding symptoms has a large pelvic mass. Transrectal biopsy reveals a small cell carcinoma of the prostate. Initial treatment should be:

E: "VP16 and cis-platinum." is correct.

Small cell carcinoma of the prostate carries a very poor prognosis. In most patients, the course is rapidly fatal. These tumors do not respond to hormonal therapy or radiotherapy. There are reports of clinical remission following chemotherapy. Chemotherapeutic regimens similar to those used for pulmonary small cell carcinoma have been most effective.

Moore SR, Reinberg Y, Zhang G: Small cell carcinoma of prostate: effectiveness of hormonal versus chemotherapy. UROL 1992;39:411-416.

A 55-year-old man with marked irritative and obstructive voiding symptoms has a large pelvic mass. Transrectal biopsy reveals a small cell carcinoma of the prostate. Initial treatment should be:

A. M-VAC chemotherapy.

B. LH-RH agonist.

C. cystoprostatectomy.

D. external beam radiotherapy.

E. VP16 and cis-platinum.

A 1200 gm newborn boy is treated for presumed sepsis with antibiotics via an umbilical artery catheter for two weeks. Five days later a skin rash is noted and urinary output decreases. He develops respiratory distress and abdominal distention. There is gross hematuria and particulate matter in the urine. The most likely diagnosis is:

B: "fungal urinary infection." is correct.

Indwelling intravascular catheters and concomitant broad spectrum antibiotics increase the likelihood of candidal infection, particularly in premature low birth weight infants. If hydronephrosis and fungus balls are present in the renal collecting system, percutaneous drainage and irrigation with Amphotericin-B may be needed. At times, fluconazole may be effective.

Wise GJ: Fungal infections of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 23, p 783.

A 1200 gm newborn boy is treated for presumed sepsis with antibiotics via an umbilical artery catheter for two weeks. Five days later a skin rash is noted and urinary output decreases. He develops respiratory distress and abdominal distention. There is gross hematuria and particulate matter in the urine. The most likely diagnosis is:

A renal vein thrombosis.

B fungal urinary infection.

C umbilical artery perforation.

D renal papillary necrosis.

E renal cortical necrosis.

A 64-year-old woman has a Grade IV cystocele without urinary incontinence. To determine the need for concomitant bladder neck suspension with cystocele repair, she should undergo:

C: "urodynamics with pessary." is correct.

Many women will develop de-novo stress incontinence after repair of a cystocele due to poor support of the urethra. Preoperatively, a urodynamic study should be performed with a pessary or vaginal pack in place to assess the competence of the bladder neck with proper bladder support. A filling study (CMG) to assess for detrusor instability, as well as Valsalva leak point pressure should be performed.

Raz S, Stothers L, Chopra A: Vaginal reconstructive surgery for incontinence and prolapse, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 32, pp 1059-1094.

A 64-year-old woman has a Grade IV cystocele without urinary incontinence. To determine the need for concomitant bladder neck suspension with cystocele repair, she should undergo:

A. a pelvic MRI scan.

B. urethral pressure profilometry.

C. urodynamics with pessary.

D. cystoscopy.

E. uroflowmetry with postvoid residual.

A 19-year-old man with mixed gonadal dysgenesis undergoes surgery for an undescended right testis. A 3 cm mass is found where the testicular vessels terminate inside the inguinal ring, along with an adjacent fallopian tube. The gonadal mass is most likely:

E: "seminoma." is correct.

Mixed gonadal dysgenesis (MGD) classically implies the presence of a normal testis with a contralateral streak gonad. The incidence of tumors in MGD is 25%, and the streak gonad should be removed when the syndrome is recognized. Gonadoblastoma, which is derived from both the germinal and interstitial elements, is often found in patients with MGD. Nevertheless, seminoma is still much more common in this patient population.

Mandell J: Sexual differentiation: Normal and abnormal, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 70, pp 2145-2154.

A 19-year-old man with mixed gonadal dysgenesis undergoes surgery for an undescended right testis. A 3 cm mass is found where the testicular vessels terminate inside the inguinal ring, along with an adjacent fallopian tube. The gonadal mass is most likely:

A ovary.

B gonadoblastoma.

C streak gonad.

D ovotestis.

E seminoma.

A 60-year-old woman has undergone jejunal conduit diversion. In order to prevent the jejunal conduit syndrome, she will require long-term therapy with:

C: "sodium chloride." is correct.

Jejunal conduits lose salt and reabsorb potassium. Urinary salt concentration in these patients is lower than jejunal levels, resulting in a washout of NaCl through the jejunal mucosa with a subsequent decrease in extracellular fluid volume. This reduces GFR, further decreasing the amount of sodium chloride excreted by the kidneys. When hyponatremia and accompanying dehydration reduce GFR, the secretion of H is further diminished and metabolic acidosis ensues. With acidosis, potassium is shifted from intra- to extracellular space resulting in hyperkalemia. There are two vicious cycles: salt loss and potassium absorption. Adding salt to the diet helps prevent the syndrome. In patients with abnormal renal function or who become dehydrated, overt hyponatremia, acidosis, and hyperkalemia will develop and will require I.V. normal saline until homeostasis is restored. The other replacement solutions are not appropriate.

Stampfer DS, McDougal WS, McGovern FJ: Metabolic and nutritional complications: Use of bowel in urologic surgery. UROL CLIN N AM 1998;24:715-722.

A 60-year-old woman has undergone jejunal conduit diversion. In order to prevent the jejunal conduit syndrome, she will require long-term therapy with:

A balanced citrate solution.

B Shohl's solution

C sodium chloride.

D sodium bicarbonate.

E potassium chloride.

The antibiotic associated with Achilles tendon rupture is:

E: "ciprofloxacin." is correct.

Achilles and other tendon ruptures have been reported with ciprofloxacin and other quinolones.

PHYSICIAN'S DESK REFERENCE, ed 53. Montvale, Medical Economics Co, 1999, pp 641-647.

The antibiotic associated with Achilles tendon rupture is:

A ampicillin.

B cephalexin.

C nitrofurantoin.

D trimethoprim-sulfamethoxazole.

E ciprofloxacin.

A 38-year-old woman has severe right flank pain. She is afebrile and urinalysis demonstrates pyuria and microhematuria. A helical CT scan demonstrates right perinephric fluid and right hydroureteronephrosis down to a 3 mm distal ureteral stone. The best treatment is:

E: "analgesic therapy." is correct.

Forniceal extravasation is usually associated with a small distal ureteral calculus. These patients should be treated no differently than others with ureteral stones. Intervention should be undertaken when there is an associated fever, nausea/vomiting, or unrelenting pain. Otherwise, conservative observation is appropriate. The AUA guidelines clearly state that a period of observation awaiting spontaneous passage is appropriate.

Segura JW, Preminger GM, Assimos DG, Dretler SP, Kahn RI, Lingeman FE, Macaluso JN: AUA guidelines managing patients with ureteral stones. J UROL 1997;158:1915-1921.

Dyer RB, Zagoria: Radiological evaluation of ureteral calculi and acute ureteral obstruction, Section 7, Calculous disease, Ramchandani P (ed): in Pollack HM, McClennan BL (eds): CLINICAL UROGRAPHY, ed 2. Philadelphia, WB Saunders Co, 2000, vol 2, chap 61, p 228.

A 38-year-old woman has severe right flank pain. She is afebrile and urinalysis demonstrates pyuria and microhematuria. A helical CT scan demonstrates right perinephric fluid and right hydroureteronephrosis down to a 3 mm distal ureteral stone. The best treatment is:

A ureteral stent.

B percutaneous nephrostomy drainage.

C percutaneous drainage of perinephric fluid.

D ureteroscopic stone removal.

E analgesic therapy.

A 60-year-old woman develops pain, tenderness, and a palpable mass over the graft three days after undergoing renal transplantation. An IVP shows urinary extravasation limited to the distal aspect of the ureter; contrast enters the urinary bladder. She is clinically stable. The most appropriate initial treatment is:

A: "percutaneous nephrostomy drainage." is correct.

The incidence of ureteral fistulas has decreased as transplant surgeons have emphasized the importance of preserving the periureteral blood supply. Such fistulas are usually due to ureteral necrosis. In the present case, extravasation is limited to the distal ureter, and the situation could be corrected by excision of the necrotic portion of ureter and repeat ureteroneocystostomy. However, as the extravasation is limited and contrast does enter the bladder signifying absence of obstruction, percutaneous drainage of the kidney alone may be successful.

Streem SB: Treatment of urinary fistulas after kidney transplantation, in Seidmon EJ, Hanno PM (eds): CURRENT UROLOGICAL THERAPY. Philadelphia, WB Saunders Co, 1994, pp 203-206.

A 60-year-old woman develops pain, tenderness, and a palpable mass over the graft three days after undergoing renal transplantation. An IVP shows urinary extravasation limited to the distal aspect of the ureter; contrast enters the urinary bladder. She is clinically stable. The most appropriate initial treatment is:

A percutaneous nephrostomy drainage.

B repeat ureteroneocystostomy.

C percutaneous drain placement.

D retrograde ureteral stent placement.

E ureteroureterostomy using the native ureter.

During surgical exploration for penetrating renal trauma, the first major branch of the left renal artery is transected. The renal segment most likely supplied by this branch is:

E: "posterior." is correct.

The first branch of the left renal artery is a small ureteral branch, but the first major branch is the posterior or dorsal artery. This artery primarily supplies the posterior segment of the kidney alone, but occasionally may provide a small branch to the apical segment as well. The anterior or ventral artery generally supplies branches to all but the posterior segment.

Kabalin JN: Surgical anatomy of the retroperitoneum, kidneys, and ureters, in Walsh, PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 2, p 75.

During surgical exploration for penetrating renal trauma, the first major branch of the left renal artery is transected. The renal segment most likely supplied by this branch is:

A apical.

B upper anterior.

C middle anterior.

D lower.

E posterior.

Which of the following is a polygenic disorder:

D: "idiopathic calcium oxalate nephrolithiasis." is correct.

Idiopathic calcium oxalate nephrolithiasis is thought to be a polygenic disorder, one influenced by several genes. The other entities are monogenic, arising from an abnormality in a single gene.

Holmes RP, Assimos DG, Goodman HO: Genetic and dietary influences on urinary oxalate excretion. UROL RES 1998;26:195-200.

Which of the following is a polygenic disorder:

A cystinuria.

B Type I primary hyperoxaluria.

C Type II primary hyperoxaluria.

D idiopathic calcium oxalate nephrolithiasis.

E adenine phosphoribosyl transferase deficiency.

A recently married, 25-year-old man had a radical orchiectomy for embryonal cell carcinoma. There was lymphatic invasion in the rete testis. Serum markers, chest and abdominal CT scan are normal. His semen analysis shows a volume of 3 ml, 25 million sperm per ml, motility 60%, and 50% normal forms. The patient and his wife want the treatment that gives the best chance for fertility, as well as the best cancer control. He should be advised to undergo:

C: "modified retroperitoneal lymphadenectomy." is correct.

The presence of lymphatic invasion in the rete testis predicts a high likelihood of retroperitoneal disease in this patient (approximately 50%). All of the therapeutic alternatives listed may have an adverse effect on fertility. Chemotherapy can result in a permanent adverse effect on fertility in approximately 30% of patients. With a modified retroperitoneal lymph node dissection or nerve-sparing dissection, fertility is preserved in 80%-90% of patients. Even if he has retroperitoneal lymph node involvement, RPLND is curative in 50-60% of patients and chemotherapy can be avoided. The presence of both embryonal cell carcinoma and invasion of the rete testis places the patient at significant risk of metastatic disease. If he is observed and recurs, he will require chemotherapy which will have an adverse effect on his fertility. Radiation therapy is not indicated in nonseminomatous tumors.

Lowe BA: Surveillance versus nerve-sparing retroperitoneal lymphadenectomy in Stage 1 nonseminomatous germ-cell tumors. UROL CLIN N AM 1993;20(1):75.

A recently married, 25-year-old man had a radical orchiectomy for embryonal cell carcinoma. There was lymphatic invasion in the rete testis. Serum markers, chest and abdominal CT scan are normal. His semen analysis shows a volume of 3 ml, 25 million sperm per ml, motility 60%, and 50% normal forms. The patient and his wife want the treatment that gives the best chance for fertility, as well as the best cancer control. He should be advised to undergo:

A radiotherapy.

B surveillance.

C modified retroperitoneal lymphadenectomy.

D bilateral retroperitoneal lymphadenectomy.

E platinum-based combination chemotherapy.

A 27-year-old woman has passed multiple calcium phosphate stones. The pH of an early morning urine is 6.5. Serum electrolytes reveal Na 140 mEq/l, K 3.4 mEq/l, Cl 112 mEq/l, and CO2 20 mEq/l. The next step in her evaluation is:

D: "24-hour urine citrate." is correct.

Renal tubular acidosis can be caused by a variety of disorders that interfere with the ability of the renal tubule to secrete hydrogen ion. There are two major types; type 1, classic or distal; and type 2, proximal. Type 1 or distal RTA occurs due to a defect in the distal nephron. The normal kidney can respond to various stimuli by excreting sufficient free hydrogen to produce a minimum urine pH of 4.0 to 4.4. Inability of the kidney to acidify the urine to a pH of less than 5.4 is a sign of distal RTA. Most patients with this disorder have a urine pH greater than 6. Patients with distal RTA have a hypokalemic, hyperchloremic metabolic acidosis. These patients are prone to urolithiasis and can develop nephrocalcinosis. Low urinary citrate in this setting is diagnostic.

Herrin JT: Renal tubular acidosis, in Barratt TM, Avner ED, Harmon WE (eds): PEDIATRIC NEPHROLOGY, ed 4. Baltimore, Lippincott Williams & Wilkins, 1999, chap 33, pp 573-574.

A 27-year-old woman has passed multiple calcium phosphate stones. The pH of an early morning urine is 6.5. Serum electrolytes reveal Na 140 mEq/l, K 3.4 mEq/l, Cl 112 mEq/l, and CO2 20 mEq/l. The next step in her evaluation is:

A serum aldosterone.

B serum renin.

C serum parathormone.

D 24-hour urine citrate.

E 24-hour urine potassium.

A 63-year-old man has a temperature of 102 degrees Fahrenheit and fecaluria eight days after radical perineal prostatectomy. A pelvic CT scan demonstrates a 5 by 4 cm heterogeneous peri-rectal fluid collection. He had received an oral bowel prep and antibiotics pre-operatively. The best management is parenteral antibiotics, percutaneous drainage of the fluid collection, and:

D: "colostomy." is correct.

Rectal injury occurs in approximately 1.5% of patients undergoing radical perineal prostatectomy. If the injury is recognized intraoperatively and the patient has received an appropriate combination bowel prep, the injury can be repaired primarily. If the rectal injury is recognized post-operatively as a vesicorectal fistula, conservative management is not indicated. In this case, the patient also has associated infection and therefore a colostomy with delayed primary repair is indicated.

Harpster LE, Rommel FM, Sieber PR, et al: The incidence and management of rectal injury associated with radical prostatectomy in a community based urology practice. J UROL 1995;154:1435-1438.

A 63-year-old man has a temperature of 102 degrees Fahrenheit and fecaluria eight days after radical perineal prostatectomy. A pelvic CT scan demonstrates a 5 by 4 cm heterogeneous peri -rectal fluid collection. He had received an oral bowel prep and antibiotics pre-operatively. The best management is parenteral antibiotics, percutaneous drainage of the fluid collection, and:

A low-residue diet.

B parenteral hyperalimentation.

C suprapubic tube.

D colostomy.

E enteral hyperalimentation.

A 63-year-old man with a long history of urethral stricture disease has a large periurethral abscess. The abscess is drained and the surrounding tissues are debrided to the deep bulbar urethra. Pathology shows acute and chronic inflammation. He is continent but has a persistent urethrocutaneous fistula. After three weeks, there is minimal granulation tissue. The next step is:

E: "suprapubic cystostomy and repeat biopsies." is correct.

In this patient with a non-healing abscess cavity and a long history of strictures, one must strongly consider the possibility of urethral carcinoma despite previous negative biopsies during an acute inflammatory phase. Thus, none of the other options should be done without a biopsy. Urinary diversion is indicated in pyogenic involvement of the urethra.

Mostafi FK, Davis CJ Jr, Sesterhenn JA: Carcinoma of the male and female urethra. UROL CLIN N AM 1992;19(2):347-357.

A 63-year-old man with a long history of urethral stricture disease has a large periurethral abscess. The abscess is drained and the surrounding tissues are debrided to the deep bulbar urethra. Pathology shows acute and chronic inflammation. He is continent but has a persistent urethrocutaneous fistula. After three weeks, there is minimal granulation tissue. The next step is:

A flap inlay urethroplasty.

B insertion of a Foley catheter.

C myocutaneous flap for coverage.

D whirlpool baths and wet-to-dry dressings.

E suprapubic cystostomy and repeat biopsies.

The von Hippel-Lindau tumor suppressor gene regulates the expression of:

D: "vascular endothelial growth factor." is correct.

The wild type VHL tumor suppressor gene product suppresses the expression of vascular endothelial growth factor (VEGF), a potent stimulator of angiogenesis. Mutation or loss of the VHL tumor suppressor gene leads to dysregulated expression of VEGF, which contributes to the neovascularity associated with renal cell carcinoma.

Walther MM, Enquist EG, Jennings SB, et al: Molecular genetics of renal cell carcinoma, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY. Baltimore, Williams & Wilkins, 2000, chap 9, pp 116-128.

Neumann HP, Zbar B: Renal cysts, renal cancer and von Hippel-Lindau disease. KID INTL 1997;51:16-26.

The von Hippel-Lindau tumor suppressor gene regulates the expression of:

A basic fibroblastic growth factor.

B epidermal growth factor receptor.

C c-Met proto-oncogene.

D vascular endothelial growth factor.

E transforming growth factor beta.

A 24-year-old man with azoospermia and an ejaculate volume of 0.5 ml has a palpably normal left vas deferens, a nonpalpable right vas deferens, and a normal digital rectal examination. Both testes measure 30 ml. The most useful diagnostic study for infertility is:

A: "transrectal ultrasonography." is correct.

The differential diagnosis for low ejaculate volume azoospermia is vasal agenesis, ejaculatory duct obstruction, and ejaculatory dysfunction. The presence of unilateral vasal agenesis upon physical examination of this patient strongly suggests the presence of a congenital anomaly with contralateral segmental vasal atresia. Transrectal ultrasonography will help differentiate between a potentially treatable ejaculatory duct obstruction and, more likely, absence or hypoplasia of the contralateral seminal vesicle and ampullary vas deferens. Patients with vasal agenesis do not require either a serum FSH or testicular biopsy unless they have testicular atrophy or another historical risk factor. Seminal fructose does not help differentiate between these two disorders, it is absent in both.

Hall S, Oates RD: Unilateral absence of the scrotal vas deferens associated with contralateral mesonephric duct anomalies resulting in infertility: Laboratory, physical and radiographic findings, and therapeutic alternatives. J UROL 1993;150:1161.

A 24-year-old man with azoospermia and an ejaculate volume of 0.5 ml has a palpably normal left vas deferens, a nonpalpable right vas deferens, and a normal digital rectal examination. Both testes measure 30 ml. The most useful diagnostic study for infertility is:

A transrectal ultrasonography.

B serum testosterone.

C post-ejaculatory urinalysis.

D testicular biopsy.

E seminal fructose.

A 59-year-old woman undergoes renal exploration for a 2.5 cm lower pole cystic tumor on the surface of the left kidney. Intraoperative inspection reveals a second smaller tumor nearby which had not been seen on preoperative CT scan. Excisional biopsies reveal both tumors to be papillary renal cell carcinomas with negative surgical margins. The contralateral kidney is radiographically normal. The next step is:

E: "nephrectomy." is correct.

Papillary renal cell carcinomas are commonly multifocal, but regardless of histology the presence of multifocal tumors in one kidney is an indication for total nephrectomy if the opposite kidney is normal because of a higher risk of local recurrence in the affected kidney. Intraoperative ultrasound might identify other unsuspected tumors but this would not change the recommended management. Cryosurgical ablation of renal tumors is investigational.

Klein EA, Novick AC: Kidney cancer: Nephron sparing surgery for renal cell carcinoma, in Vogelzang N, Scardino PT, Shipley WV, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY. Baltimore, Williams and Wilkins, 1996, pp 209-210.

A 59-year-old woman undergoes renal exploration for a 2.5 cm lower pole cystic tumor on the surface of the left kidney. Intraoperative inspection reveals a second smaller tumor nearby which had not been seen on preoperative CT scan. Excisional biopsies reveal both tumors to be papillary renal cell carcinomas with negative surgical margins. The contralateral kidney is radiographically normal. The next step is:

A no further therapy.

B intraoperative renal ultrasound.

C lower pole nephrectomy.

D contralateral renal exploration.

E nephrectomy.

A 21-year-old man with sickle cell disease has an 18-hour history of a painful, persistent erection. The best initial management is:

C: "transfusion and alkalinization." is correct.

The cause of priapism is an important issue in defining treatment. In patients with sickle cell anemia priapism should be initially treated with intravenous hydration, alkalinization, oxygenation, and transfusion. If priapism persists > 24-48 hours then corporal aspiration and phenylephrine can be used. Shunt procedures should be reserved for failure of conservative measures.

Benson GS, Boileau MA: The penis: Sexual function and dysfunction, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, 1996, pp 1159-1219.

A 21-year-old man with sickle cell disease has an 18-hour history of a painful, persistent erection. The best initial management is:

A oral terbutaline.

B Winter shunt.

C transfusion and alkalinization.

D perineal spongiosum-cavernosum shunt.

E saphenous vein-cavernosum shunt.

Androgen ablation prior to radical prostatectomy results in:

C: "decreased positive surgical margins." is correct.

The use of pre-operative androgen ablation in patients undergoing surgical treatment for localized prostate cancer can result in a decrease in surgical positive margins by 20-30%. Some studies now suggest that downsizing does not affect PSA recurrence rates beneficially.

Soloway MS, Sharifi R, Wajsman Z, et al: Randomized prospective study comparing radical prostatectomy alone versus radical prostatectomy preceded by androgen blockage in clinical stage B2 (T2bNxMo) prostate cancer. J UROL 1995;154:424.

Fair WR, Aprikian AG, Cohen D, et al: Use of neoadjuvant androgen deprivation therapy in clinically localized prostate cancer. CLIN INVEST MED 1993;16:516.

Androgen ablation prior to radical prostatectomy results in:

A improved postoperative potency.

B improved urinary continence rates.

C decreased positive surgical margins.

D decreased risk of lymph node metastases.

E increased time to disease progression.

A four-year-old girl is undergoing a left ureteral reimplantation for Grade III/V lower pole reflux. She has a duplex left kidney with a nonobstructed upper pole and normal caliber ureters. When the bladder is opened, a small left ureterocele is noted. The best management is:

C: "excise the ureterocele and reimplant both the upper and lower pole ureters." is correct.

Although the small caliber upper pole ureter drains what appears to be a non-functioning renal segment, some urine is produced from the upper pole segment. Incising the ureterocele may result in reflux to that segment. A ureteroureterostomy into the ureter of the ureterocele may result in obstruction. Upper pole partial nephrectomy is not necessary, even if the function of the system is quite poor. A common sheath ureteral reimplantation after excision of the ureterocele is a safe one stage method of management.

Schlussel RN, Retik AB: Anomalies of the ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed. 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 60, pp 1814-1857.

A four-year-old girl is undergoing a left ureteral reimplantation for Grade III/V lower pole reflux. She has a duplex left kidney with a nonobstructed upper pole and normal caliber ureters. When the bladder is opened, a small left ureterocele is noted. The best management is:

A. excise the ureterocele, reimplant the lower pole ureter, and perform an upper pole partial nephrectomy.

B. excise the ureterocele and perform an upper pole partial nephrectomy.

C. excise the ureterocele and reimplant both the upper and lower pole ureters.

D. perform an ipsilateral ureteroureterostomy of the refluxing lower pole ureter into the upper pole ureter.

E. incise the ureterocele and close the bladder.

A 55-year-old man with epigastric discomfort has a 5 cm right adrenal mass on CT scan. The mass measures negative 40 Hounsfield units. The next step is:

A: "observation." is correct.

A mass with Hounsfield units between negative 30 and negative 140 is characteristic of an adrenal myelolipoma. These tumors are benign and are composed of lipid and myeloid tissue. No additional therapy or evaluation is required.

Vaughan ED Jr, Blumenfield JD: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AW (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 96, p 2915.

A 55-year-old man with epigastric discomfort has a 5 cm right adrenal mass on CT scan. The mass measures negative 40 Hounsfield units. The next step is:

A observation.

B plasma catecholamines.

C MIBG scan.

D right adrenalectomy.

E AM serum cortisol.

A six-month-old boy had a myelomeningocele which was closed at birth. He has had a documented febrile UTI. Ultrasound shows bilateral moderate hydronephrosis, and VCUG shows no reflux. It is likely that:

E: "detrusor leak point pressure is greater than 40 cm H2O." is correct.

Hydronephrosis and infection in the six-month-old patient with myelodysplasia would imply a detrusor leak point pressure of greater than 40 cm H2O. Although spontaneous resolution of reflux is observed, one would not anticipate hydronephrosis. Usually EMG demonstrates continuous or increasing activity with filling. Intermittent catheterization or vesicostomy should be considered rather than augmentation. Only 10% to 20% of patients with myelodysplasia will ultimately require augmentation. Antibiotics alone would not be adequate therapy.

McGuire EJ, Woodside JR, Borden TA: Prognostic value of urodynamic testing in myelodysplastic patients. J UROL 1981;126:205.

Hernandez RD, Hurwitz RS, Foote JE: Nonsurgical management of threatened upper urinary tracts and incontinence in children with myelomeningocele. J UROL 1994;152:1582-1585.

A six-month-old boy had a myelomeningocele which was closed at birth. He has had a documented febrile UTI. Ultrasound shows bilateral moderate hydronephrosis, and VCUG shows no reflux. It is likely that:

A spinal shock persists.

B prophylactic antibiotics will prove definitive.

C reflux has spontaneously resolved.

D bladder augmentation will be necessary.

E detrusor leak point pressure is greater than 40 cm H_2O.

A 27-year-old man being evaluated for infertility of nine months duration has a normal sperm count and motility but sperm morphology reveals only round headed sperm. Testis volume is normal bilaterally, serum FSH is within normal limits, and he has a moderate sized left unilateral varicocele. His wife is 25 years old and has a normal evaluation. The next step is:

E: "intracytoplasmic sperm injection." is correct.

Observation is a reasonable choice in young couples with infertility of less than one year's duration. However, the finding of round headed sperm is consistent with absence of the acrosome and individuals with this finding are sterile. Standard intrauterine inseminations and in vitro fertilization are unsuccessful because the sperm can not fertilize an egg without a normal acrosome. Varicocele repair will not improve the morphology. The only method that will induce a pregnancy using the patient's sperm is in vitro fertilization using intracytoplasmic sperm injection. The alternative is donor insemination.

Bourne H, Liu DY, Clarke GN, Baker HW: Normal fertilization and embryo development by intracytoplasmic sperm injection of round-headed acrosomeless sperm. FERT & STER 1995;63(6):1329-1332.

Lundin K, Sjogren A, Nilsson L, Hamberger L: Fertilization and pregnancy after intracytoplasmic microinjection of acrosomeless spermatozoa. FERT & STER 1994;62(6):1266-1267.

A 27-year-old man being evaluated for infertility of nine months duration has a normal sperm count and motility but sperm morphology reveals only round headed sperm. Testis volume is normal bilaterally, serum FSH is within normal limits, and he has a moderate sized left unilateral varicocele. His wife is 25 years old and has a normal evaluation. The next step is:

A varicocele repair.

B intrauterine insemination.

C re-evaluation in three months.

D in vitro fertilization.

E intracytoplasmic sperm injection.

A 24-year-old man has a pure seminoma found in a radical inguinal orchiectomy specimen. His preoperative serum AFP is normal, and beta-hCG is 10 MIU/ml (normal < 3 MIU/ml). Postoperatively, the serum hCG at one week is 2 MIU/ml. Physical examination is normal. Chest x-ray and abdominal CT studies are normal. The most appropriate treatment is:

A: "retroperitoneal radiation therapy." is correct.

Serum hCG is mildly elevated in approximately 10% of patients with pure seminoma. It is important to review all of the pathologic specimen carefully for evidence of nonseminomatous germ cell testicular cancer; however, often only syncytial giant cells are found. Recent studies have shown that these cells stain positively for hCG using immunoperoxidase methods. In some cases, no such cells are found. Treatment for Stage A seminoma in this patient remains radiation therapy, with evidence showing no survival advantage to adding mediastinal therapy to abdominal radiation in patients with Stage I or II-A disease. In addition, maximum bone marrow reserve is maintained so that possible future chemotherapy will not be compromised.

Richie JP: Neoplasms of the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 78, p 2437.

A 24-year-old man has a pure seminoma found in a radical inguinal orchiectomy specimen. His preoperative serum AFP is normal, and beta-hCG is 10 MIU/ml (normal < 3 MIU/ml). Postoperatively, the serum hCG at one week is 2 MIU/ml. Physical examination is normal. Chest x-ray and abdominal CT studies are normal. The most appropriate treatment is:

A retroperitoneal radiation therapy.

B retroperitoneal lymphadenectomy.

C retroperitoneal and mediastinal radiation therapy.

D vinblastine, bleomycin, and cisplatin chemotherapy.

E surveillance.

A 52-year-old man with sickle cell disease had a 30-year history of priapism occurring every two to three months. Most of the episodes necessitated hospitalization and responded to medical management. Three months ago, however, a cavernosal-spongiosum shunt was required. Since the surgery, he has had no episodes of priapism but must apply a rubber band to the base of the penis to obtain satisfactory erection. The most appropriate course of management is:

B: "observation." is correct.

The clinical history suggests erectile dysfunction due to patency of the cavernosal-spongiosum shunt. However, since satisfactory erections can be obtained with the application of a constricting device at the base of the penis, and because closure of the shunts would lead probably to recurrence of the debilitating priapism, further investigation is not warranted.

Benson GS, Boileau MA: The penis: Sexual function and dysfunction, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY. Chicago, Yearbook Medical Publishers, 1987, p 407.

A 52-year-old man with sickle cell disease had a 30-year history of priapism occurring every two to three months. Most of the episodes necessitated hospitalization and responded to medical management. Three months ago, however, a cavernosal-spongiosum shunt was required. Since the surgery, he has had no episodes of priapism but must apply a rubber band to the base of the penis to obtain satisfactory erection. The most appropriate course of management is:

A intracorporeal prostaglandin injections.

B observation.

C cavernosography.

D insertion of penile prosthesis.

E cavernosal pressure studies.

Following a TURP, striated muscle is identified in the prostate chips. The patient will most likely experience:

E: "no complications." is correct.

Striated muscle can be demonstrated in the normal prostate gland. In fact, striated muscle can be found in the prostate chips following TURP in up to 30% of cases. This striated muscle is thought to be a reflection of pelvic floor striated muscle and is a normal finding. The presence of striated muscle in prostate chips does not increase the likelihood of the patient experiencing postoperative incontinence, impotence, excessive bleeding, or urinary extravasation.

Mebust WK: Transurethral surgery, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 49, pp 1511-1528.

Following a TURP, striated muscle is identified in the prostate chips. The patient will most likely experience:

A incontinence.

B impotence.

C urinary extravasation.

D excessive bleeding.

E no complications.

Among girls seen for evaluation of a reported straddle injury, which factor mandates an evaluation for sexual abuse:

D: "age under nine months." is correct.

Genitourinary manifestations of sexual abuse in children are many and straddle injuries often can be confused with abuse. A straddle injury under nine months of age is a "red flag" of abuse in that children of that age are not ambulatory.

Dowd MD, Fitzmaurice L, Knapp JF, Mooney D: The interpretation of urogenital findings in children with straddle injuries. J PED SUR 1994;29(1):7-10.

Among girls seen for evaluation of a reported straddle injury, which factor mandates an evaluation for sexual abuse:

A recurrent UTIs.

B diurnal enuresis beyond age six years.

C infrequent voiding.

D age under nine months.

E encopresis.

Capacitation of spermatozoa:

D: "occurs in the female genital tract." is correct.

Capacitation is a poorly characterized series of biochemical and cellular changes in spermatozoa which normally take place within the female reproductive tract. Capacitation is followed by characteristic changes in motility and the ability to fertilize the human ovum. Capacitation can occur in vitro through incubation of the sperm in special buffer materials. Seminal plasma inhibits capacitation.

Schlegel PN, Chang TSK: Physiology of male reproduction: The testis, epididymis, and ductus deferens, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 42, pp 1254-1278.

Capacitation of spermatozoa:

A occurs in the epididymis.

B is activated by seminal plasma.

C requires cervical mucus.

D occurs in the female genital tract.

E results in loss of tail structure.

A 62-year-old man has persistent severe dysuria four months following kidney/pancreas transplantation drained via pancreaticoduodenocystostomy. Urine culture is negative. Cystoscopic examination reveals severe posterior urethritis. A retrograde urethrogram (RUG) reveals extravasation from the bulbar urethra. The most likely explanation is:

C: "activated proteolytic exocrine enzymes." is correct.

Dysuria syndrome is now a well recognized urologic complication that follows combined kidney/pancreas transplantation drained via pancreaticoduodenocystostomy. The classic presentation is severe dysuria beginning several months after the transplant. Often there is a history of urethral instrumentation. Cystoscopic findings range from severe posterior urethritis to necrosis of the bulbar urethra, while a retrograde urethrogram will reveal extravasation from the bulbar urethra, in almost all cases. Depending on the severity, successful management will be accomplished with either temporary urethral catheter or suprapubic cystostomy drainage. In severe cases, it has been necessary to divert pancreatic exocrine drainage from the bladder to the intestine. The most likely cause is traumatic disruption of urethral mucosa (usually from temporary Foley catheterization) with subsequent inflammation due to activated proteolytic enzymes from the exocrine pancreas.

Elkhammas EA, Henry ML, York JP, et al: Pancreas transplantation and dysuria. J UROL 1994;152:881-883.

A 62-year-old man has persistent severe dysuria four months following kidney/pancreas transplantation drained via pancreaticoduodenocystostomy. Urine culture is negative. Cystoscopic examination reveals severe posterior urethritis. A retrograde urethrogram (RUG) reveals extravasation from the bulbar urethra. The most likely explanation is:

A cytomegaloviral urethritis.

B urethral stricture.

C activated proteolytic exocrine enzymes.

D urethral perforation from cystoscopy.

E over-injection of contrast during RUG.

A 67-year-old woman with steroid dependent chronic obstructive pulmonary disease has multifocal CIS of the bladder. The best management is intravesical:

D: "mitomycin C." is correct.

Intravesical BCG is established as the best agent for intravesical therapy for CIS. However, it is contraindicated in immunocompromised patients because of impaired efficacy and an increased risk of infectious complications. The next most effective agent is mitomycin C, which would be the best choice in this clinical circumstance. Valrubicin is only indicated for BCG refractory CIS.

Messing EM, Catalona W: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ: CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 77, pp 2362-2366.

A 67-year-old woman with steroid dependent chronic obstructive pulmonary disease has multifocal CIS of the bladder. The best management is intravesical:

A. BCG.

B. thiotepa.

C. doxorubicin.

D. mitomycin C.

E. valrubicin.

Multicystic renal dysplasia is most frequently associated with:

C: "ureteral atresia." is correct.

The typical features of a multicystic kidney are an atretic ureter, lack of reniform outline, absence of the renal pelvis, noncommunicating cysts of varying sizes, and dysplastic parenchyma. Prior to the advent of ultrasonography, the identification of an atretic ureter on retrograde pyelography was an important diagnostic finding.

Rickwood AM: Multicystic renal dysplasia detected by prenatal ultrasonography. Natural history and results of conservative management. BR J UROL 1992;69:538.

Multicystic renal dysplasia is most frequently associated with:

A vesicoureteral reflux.

B tuberous sclerosis.

C ureteral atresia.

D family history of cystic disease.

E renal failure.

A five-year-old girl is treated for cystitis. She has urge incontinence four days per week and nocturnal enuresis. A VCUG shows no reflux. Physical examination is normal. The next step is:

D: "timed voiding." is correct.

Enuresis is a common problem in five-year-old children. Diurnal enuresis is present in 7-8%, and nocturnal enuresis in 15%. Pharmacologic management may be considered, but the initial treatment should be timed voiding. This will improve the enuresis and decrease the risk for subsequent infection.

Rushton HG: Wetting and functional voiding disorders. UROL CLIN N AM 1995;22:75-93.

A five-year-old girl is treated for cystitis. She has urge incontinence four days per week and nocturnal enuresis. A VCUG shows no reflux. Physical examination is normal. The next step is:

A. DDAVP.

B. oxybutynin.

C. imipramine.

D. timed voiding.

E. observation.

During radical nephrectomy in a 50-year-old man, the superior mesenteric artery is divided. The bowel segment likely to maintain normal blood supply is:

A: "duodenum." is correct.

The duodenum is supplied by the pancreaticoduodenal and the gastroduodenal arteries which arise from the celiac trunk. All of the other bowel segments are supplied by branches of the superior mesenteric artery. Although ligation of the SMA may be well tolerated, assessment of bowel viability should be done. If feasible primary repair of the vessel should be undertaken.

Ritchey ML, Lally KP, Haase GM, et al: Superior mesenteric artery injury during nephrectomy for Wilms' tumor. J PED SUR 1992;27:612-615.

During radical nephrectomy in a 50-year-old man, the superior mesenteric artery is divided. The bowel segment likely to maintain normal blood supply is:

A duodenum.

B jejunum.

C ileum.

D cecum.

E ascending colon.

A 68-year-old woman has recurrent ureteral clot obstruction of her solitary kidney that contains a large hypervascular tumor in the lower pole, comprising approximately one-third of the kidney. The other kidney had been removed five years ago for renal cell carcinoma. CT scan shows enlarged periaortic nodes and several small nodules in both lungs. Serum creatinine is 1.7 mg/dl when the kidney is not obstructed. The next step is:

E: "selective embolization of arteries to the tumor." is correct.

Angioinfarction of renal tumors has been used both as a preoperative adjunct and as a palliative measure in patients with unresectable or metastatic tumors. A variety of agents have been used for embolization including absolute alcohol, autologous blood clot, gelatin sponges (Gelfoam), and Gianturco steel coils. The kidney is an end organ and thus, angioinfarction may be accomplished at minimal risk to adjacent vascular beds. Most patients develop a post-infarction syndrome characterized by ileus, fever, flank or abdominal pain, and leukocytosis. Pyelonephritis should be eradicated before embolization. Partial nephrectomy could be a last resort if embolization should fail. Radiotherapy is unlikely to stop bleeding and will cause severe renal damage. Intravenous epsilon aminocaproic acid will only help temporarily, if at all, and may be dangerous because it may produce firm, persistent clots.

Jennings SB, Linehan WM: Renal, perirenal, and ureteral neoplasms, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, 1996, vol 1, chap 15, pp 665-666.

A 68-year-old woman has recurrent ureteral clot obstruction of her solitary kidney that contains a large hypervascular tumor in the lower pole, comprising approximately one-third of the kidney. The other kidney had been removed five years ago for renal cell carcinoma. CT scan shows enlarged periaortic nodes and several small nodules in both lungs. Serum creatinine is 1.7 mg/dl when the kidney is not obstructed. The next step is:

A partial nephrectomy.

B radiotherapy to the renal tumor.

C nephrectomy, then chronic dialysis.

D intravenous epsilon aminocaproic acid.

E selective embolization of arteries to the tumor.

A 47-year-old man with bladder exstrophy and bilateral ureterosigmoidostomies had been lost to follow-up for 20 years. Current evaluation reveals that he is healthy, empties every 2.5 hours, and has nighttime incontinence. He has a serum creatinine of 1.4 mg/dl with a mild hyperchloremic acidosis and has experienced two to three UTI's every year. An IVP shows prompt excretion with slight caliectasis bilaterally. The next step is:

D: "sigmoidoscopy." is correct.

The most important issue for this patient is the risk of developing a colon cancer at the site of the ureteral-enteric anastomoses, which increases approximately 10% for each ten years after this form of diversion. This is best accomplished by sigmoidoscopy or colonoscopy, since radiographic studies might miss a small tumor. Since renal function has been relatively well-preserved and an IVP shows bilateral function, a renal scan is unlikely to add useful information. The occasional leakage is typical of patients with ureterosigmoidostomy and anal manometry is unlikely to help this situation. Mild hyperchloremic acidosis is also typical for this form of diversion and can be treated with oral replacement therapy without measurement of urinary electrolytes.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 3121-3161.

A 47-year-old man with bladder exstrophy and bilateral ureterosigmoidostomies had been lost to follow-up for 20 years. Current evaluation reveals that he is healthy, empties every 2.5 hours, and has nighttime incontinence. He has a serum creatinine of 1.4 mg/dl with a mild hyperchloremic acidosis and has experienced two to three UTI's every year. An IVP shows prompt excretion with slight caliectasis bilaterally. The next step is:

A barium enema.

B spiral CT scan.

C anal manometry.

D sigmoidoscopy.

E DMSA renal scan.

A 76-year-old man with diabetes develops a febrile UTI after TURP. Antibiotic therapy is administered and 48 hours later the urine culture is sterile. His clinical condition deteriorates and he has a temperature of 103 degrees Fahrenheit. He becomes comatose, hypotensive, and has a grand mal seizure. Laboratory studies show: serum osmolality 500 mOsm/l; urine sugar 4+; and urine ketones negative. The most likely diagnosis is:

C: "hyperosmolar coma." is correct.

Increased insulin requirements are common during periods of physiological stress (i.e. infection, trauma, surgery, etc.). Nonketotic hyperglycemic coma (hyperosmolar coma) should be considered in those with: hyperglycemia > 600 mg/dl, serum osmolarity > 310 mosm/kg, no acidosis, serum bicarbonate > 15 mg/l and no significant ketosis. The onset of disorder may be insidious as significant ketosis is absent. Dehydration becomes profound. Lethargy and confusion develop and may be followed by seizures. Treatment includes fluid and potassium replacement and insulin administration. Diabetic ketoacidosis should be considered in a comatose patient with the following features: hyperglycemia > 300 mg/dl, acidosis with a blood pH < 7.3, serum bicarbonate < 15 mg/l, and serum or urine positive for ketones.

Unger RH, Foster DW: Diabetes mellitus, in Wilson JD, Foster DW, Kronenberg HM, Larsen PR (eds): WILLIAM'S TEXTBOOK OF ENDOCRINOLOGY, ed 9. Philadelphia, WB Saunders Co, 1998, chap 21, pp 1011-1013.

A 76-year-old man with diabetes develops a febrile UTI after TURP. Antibiotic therapy is administered and 48 hours later the urine culture is sterile. His clinical condition deteriorates and he has a temperature of 103 degrees Fahrenheit. He becomes comatose, hypotensive, and has a grand mal seizure. Laboratory studies show: serum osmolality 500 mOsm/l; urine sugar 4+; and urine ketones negative. The most likely diagnosis is:

A diabetic ketoacidosis.

B brain abscess.

C hyperosmolar coma.

D gram-negative septicemia.

E severe dehydration.

A 70-year-old man undergoes transperineal brachytherapy with I-125 seeds for localized prostate cancer. The preoperative AUA Symptom Score was 18. Three months after treatment he has significant obstructive voiding symptoms and a postvoid residual of 250 cc. There is no improvement with oral terazosin. The best management at this time is:

C: "clean intermittent catheterization." is correct.

Urinary retention after transperineal brachytherapy is common in men with significant pre-treatment obstructive symptoms and is best managed by intermittent catheterization. I-125 has a half-life of 60 days and TURP is contraindicated in the first nine months after treatment because of the risk of radioactive exposure to the surgeon, operating room personnel, and pathologists. Response rates to all alpha blockers are similar and switching to another agent of the same class is unlikely to help. Either oral bicalutamide or finasteride will take several months to shrink the prostate.

Terk MD, Stock RG, Stone NN: Identification of patients at increased risk for prolonged urinary retention following radioactive seed implantation of the prostate. J UROL 1998;160:1379.

A 70-year-old man undergoes transperineal brachytherapy with I-125 seeds for localized prostate cancer. The preoperative AUA Symptom Score was 18. Three months after treatment he has significant obstructive voiding symptoms and a postvoid residual of 250 cc. There is no improvement with oral terazosin. The best management at this time is:

A bicalutamide (Casodex).

B tamsulosin (Flomax).

C clean intermittent catheterization.

D finasteride (Proscar).

E TURP.

The primary advantage of electrovaporization over transurethral prostatectomy in a 70-year-old sexually active man with a 40 gm benign prostate and a history of two myocardial infarctions is:

D: "less fluid absorption." is correct.

Relative to a TURP, electrovaporization is a longer surgical procedure which typically is associated with less bleeding, shorter hospital stay, and less fluid absorption. The most clinically relevant advantage of electrovaporization in the above case is the decrease in fluid absorption since the patient has a history of significant coronary artery disease and is likely to be at risk for developing congestive heart failure. The incidence of retrograde ejaculation is similar for both procedures. Following vaporization, patients typically experience more dysuria.

Kaplan SA, Te AE: Transurethral electrovaporization of the prostate: A novel method for treating benign prostatic hyperplasia. UROL 1995;45:566.

The primary advantage of electrovaporization over transurethral prostatectomy in a 70-year-old sexually active man with a 40 gm benign prostate and a history of two myocardial infarctions is:

A less dysuria.

B shorter hospital stay.

C decreased operative time.

D less fluid absorption.

E less retrograde ejaculation.

A 50-year-old woman has urinary frequency, occasional urge incontinence, and dyspareunia. She has a history of recurrent urinary infections. On physical examination, the bladder is not distended, but the urethra is tender to palpation. Which of the following would most reliably establish a definitive diagnosis:

C: "pelvic MRI scan." is correct.

In this clinical setting, the most likely diagnosis is chronic urinary infection secondary to a urethral diverticulum. Although many of these lesions can be demonstrated on a VCUG, pelvic MRI is being used with increasing frequency to confirm the diagnosis. Endoscopic examination under general anesthesia with good relaxation and simultaneous digital compression of the anterior vaginal wall may be necessary to satisfactorily demonstrate these lesions. In some cases, a retrograde urethrogram, utilizing the double balloon compression technique, is necessary to demonstrate the diverticulum. These lesions are seldom demonstrated by IVP studies. Quantitative urine cultures, although positive in these cases, do not establish the diagnosis. Urodynamics are not indicated in patients with suspected local urethral disease unless there is clinical evidence of co-existent neurogenic disease.

Leach GE, Trochman BA: Surgery for vesicovaginal and urethrovaginal fistula and urethral diverticulum, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr, Wein AJ (eds): Philadelphia, WB Saunders Co, 1998, vol 1, chap 37, pp 1135-1153.

A 50-year-old woman has urinary frequency, occasional urge incontinence, and dyspareunia. She has a history of recurrent urinary infections. On physical examination, the bladder is not distended, but the urethra is tender to palpation. Which of the following would most reliably establish a definitive diagnosis:

A IVP with postvoid film.

B urethral calibration with residual urine assessment.

C pelvic MRI scan.

D cystoscopy.

E urodynamics.

A 24-year-old man with chronic renal failure managed by hemodialysis desires evaluation and treatment for erectile dysfunction. He is scheduled to undergo renal transplantation from a living-related donor in approximately one month. The best management is:

E: "re-evaluation after transplantation." is correct.

A significant number of patients with chronic renal failure who are on hemodialysis experience sexual dysfunction. Following transplantation, a significant number of these men regain their pre-illness level of sexual function. In a report by Salvatierra, 64% of patients who had been transplanted less than three years, and 84% of patients transplanted for more than three years had regained their "pre-illness" level of sexual activity. This patient is to undergo transplantation in one month. The best management plan is to wait and re-evaluate him after transplantation if his sexual function does not return to acceptable levels.

Lue TF, Broderick G: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 39, pp 1181-1214.

A 24-year-old man with chronic renal failure managed by hemodialysis desires evaluation and treatment for erectile dysfunction. He is scheduled to undergo renal transplantation from a living-related donor in approximately one month. The best management is:

A serum testosterone and prolactin.

B nocturnal penile tumescence study.

C penile duplex ultrasound.

D intracavernosal injection therapy.

E re-evaluation after transplantation.

Recipients with blood type O may receive a kidney from a donor with blood type:

D: "A2." is correct.

ABO blood type incompatibility is considered a contraindication to transplantation because of the risk of preformed antibody mediated hyperacute rejection. The A2 subtype is a weaker antigen and does not induce agglutination when exposed to A1 reagents. A2 patients express lower amounts of antigen and do not express other subtypes in the kidney. With the use of plasmapheresis there are reports of successful transplantation of A2 donors with O recipients.

Alkuhunaizi AM, de Mahos AM, Barry JM, et al: Renal transplantation across the ABO barrier using A2 kidneys. TRANSPLANTATION 1999;67:1319-1324.

Recipients with blood type O may receive a kidney from a donor with blood type:

A AB.

B B.

C A1.

D A2.

E A3.

A 35-year-old man returns for percutaneous nephrostomy tube removal five days after undergoing successful nephrostolithotomy. As the catheter is being removed, brisk bleeding is noted. The best management is:

B: "reinsertion of the nephrostomy tube." is correct.

Blood loss requiring transfusion occurs in 1% to 11% of patients undergoing percutaneous renal surgery. Bleeding usually is a result of injury to the anterior or posterior segmental arteries. A transparenchymal posterolateral puncture minimizes the likelihood of vascular injury. Bleeding occurring during nephrostomy tract dilation should be controlled by passage of the next larger dilator. Persistent bleeding may be managed by stopping the procedure, placing and clamping the nephrostomy tube. When bleeding occurs when the nephrostomy tube is being removed, the nephrostomy tube should be reinserted to tamponade the bleeding vessel. When such measures fail, angiography and selective arterial embolization should be considered. Usually an arteriovenous fistula or pseudoaneurysm is identified. Persistent, gross hematuria occurring after nephrostomy tube removal may be managed similarly.

Kessaris DN, Bellman GC, Pardalidis NP, Smith AD: Management of hemorrhage after percutaneous renal surgery. J UROL 1995;153:604-608.

A 35-year-old man returns for percutaneous nephrostomy tube removal five days after undergoing successful nephrostolithotomy. As the catheter is being removed, brisk bleeding is noted. The best management is:

A compression of the nephrostomy site.

B reinsertion of the nephrostomy tube.

C surgical exploration.

D angiography and embolization.

E removal of the nephrostomy tube and observation.

A 38-year-old woman with multiple sclerosis complains of urinary frequency, urgency, and urge incontinence. Urinalysis and culture are negative. Pelvic examination with a full bladder is normal. Residual urine one hour after voiding is 50 ml. The most likely diagnosis is:

B: "detrusor hyperreflexia." is correct.

In most series reporting urodynamic findings in patients with multiple sclerosis, detrusor hyperreflexia is seen in 50% to 90% of patients. Ultimately, striated sphincter dyssynergia develops in 30% to 60% of patients affected with multiple sclerosis. With a minimal residual urine, sphincter dyssynergia is unlikely, but should be ruled out when suspected by formal urodynamic studies.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 29, pp 953-1006.

A 38-year-old woman with multiple sclerosis complains of urinary frequency, urgency, and urge incontinence. Urinalysis and culture are negative. Pelvic examination with a full bladder is normal. Residual urine one hour after voiding is 50 ml. The most likely diagnosis is:

A detrusor hypocontractility.

B detrusor hyperreflexia.

C detrusor-external sphincter dyssynergia.

D detrusor-internal sphincter dyssynergia.

E poor bladder compliance.

During an ilioinguinal node dissection for metastatic penile carcinoma, which muscle is best suited for transposition over the femoral vessels in order to prevent subsequent vascular injury:

C: "sartorius." is correct.

The sartorius muscle extends from the anterior iliac spine to the medial aspect of the knee. The iliac extension may be separated from its attachment and sutured to the inguinal ligament, providing cover and protection of the femoral vessels. None of the other muscles are in an anatomic position to be useful for this purpose.

Crawford ED, Daneshgari F: Management of regional lymphatic drainage in carcinoma of the penis. UROL CLIN N AM 1992;19(2):305.

During an ilioinguinal node dissection for metastatic penile carcinoma, which muscle is best suited for transposition over the femoral vessels in order to prevent subsequent vascular injury:

A gracilis.

B pectineus.

C sartorius.

D rectus femoris.

E vastus lateralis.

Which testosterone preparation is most likely to cause polycythemia or sleep apnea:

E: "testosterone enanthate." is correct.

Testosterone replacement therapy is safe in hypogonadal men except those with carcinoma of the breast or known or suspected prostate cancer. Patients receiving testosterone therapy should be monitored with periodic DRE's, PSA, serum testosterone levels, and hematocrit. Polycythemia and sleep apnea can occur, especially with injectable testosterone therapy.

Hajjar RR, Kaiser FE, Morley JE: Outcomes of long-term testosterone replacement in older hypogonadal males: A retrospective analysis. J CLIN ENDOCRIN METAB 1997;82:3793.

Which testosterone preparation is most likely to cause polycythemia or sleep apnea:

A Androgel.

B testosterone undecenoate.

C Androderm.

D Testoderm.

E testosterone enanthate.

Indinavir sulfate (Crixivan) urinary stones:

A: "are usually radiolucent." is correct.

Protease inhibitors (e.g. indinavir sulfate) are poorly soluble in urine and cause urolithiasis in 12-20% of patients within one year. Pure indinavir stones are radiolucent and, unlike uric acid stones, are not visualized on CT scans. Most indinavir stones can be managed conservatively. Their gelatinous nature explains the difficulty in treatment using lithotripsy techniques.

Schwartz BF, Schenkmen N, Armenakas NA, Stoller ML: Imaging characteristics of indinavir calculi. J UROL 1999;161:1085.

Indinavir sulfate (Crixivan) urinary stones:

A are usually radiolucent.

B occur in 55% of HIV positive patients.

C fragment readily with lithotripsy.

D are readily visualized on unenhanced CT scan.

E require early urologic intervention.

Ultrasound of a 28-week-old fetus demonstrates normal kidneys and amniotic fluid. The bladder is not visualized on several ultrasounds. The most likely explanation is:

D: "bladder exstrophy." is correct.

The bladder is visible in the fetus at 14 weeks gestation. Nonvisualization of the bladder is seen in the fetus with poor renal function and oligohydramnios, cloacal exstrophy, bladder extrophy and persistent cloaca. The finding of normal kidneys and normal amniotic fluid excludes bladder agenesis and ectopic ureters. The bladder is visualized with a patent urachus. Prenatally diagnosed bladder exstrophy demonstrates an absent bladder, anterior abdominal mass and low-set umbilicus on ultrasound examination.

Gearhart JP, Ben-Chaim J, Jeffs RD, Sanders RC: Criteria for the prenatal diagnosis of classic bladder exstrophy. OBS & GYN 1995;85:961-964.

Ultrasound of a 28-week-old fetus demonstrates normal kidneys and amniotic fluid. The bladder is not visualized on several ultrasounds. The most likely explanation is:

A persistent cloaca.

B bilateral ectopic ureters.

C maternal dehydration.

D bladder exstrophy.

E patent urachus.

A useful adjunct for treatment of Candida albicans cystitis is:

E: "sodium bicarbonate." is correct.

An adjunct in treating Candida albicans urinary infection is urinary alkalinization. Alkalinization above pH 6.8 has a significant inhibitory effect on the multiplication of Candida. Sodium bicarbonate given orally is very effective for promoting urine alkalinization. Mannitol, an osmotic diuretic, has no effect. Ascorbic acid, Mandelamine, and acid ash diet tend to acidify the urine.

Tanagho EA: Specific infections of the genitourinary tract, in Tanagho EA, McAninch JW (eds): SMITH'S GENERAL UROLOGY, ed 15. New York, Lang Medical Books/McGraw-Hill, 2000, chap 15, p 273.

A useful adjunct for treatment of Candida albicans cystitis is:

A mannitol.

B ascorbic acid.

C Mandelamine.

D acid ash diet.

E sodium bicarbonate.

The most serious urodynamic finding in men with voiding symptoms secondary to multiple sclerosis is:

E: "detrusor-striated sphincter dyssynergia." is correct.

Men with multiple sclerosis and detrusor-striated sphincter dyssynergia are at significant risk to develop upper urinary tract abnormalities. Besides detrusor-striated sphincter dyssynergia in men, decreased compliance resulting in sustained intravesical pressures > 40 cm of water is also a significant risk factor. Although all of the other answers may be seen in men with voiding symptoms and multiple sclerosis, their presence is not as significant as the initial finding of detrusor-striated sphincter dyssynergia.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 29, pp 953-1006.

The most serious urodynamic finding in men with voiding symptoms secondary to multiple sclerosis is:

A bladder capacity > 800 cc.

B residual urine > 300 cc.

C maximum flow rate < 15 cc/sec.

D detrusor hypocontractility.

E detrusor-striated sphincter dyssynergia.

A nine-year-old girl with adrenogenital syndrome is severely virilized, and her vagina enters the urogenital sinus immediately below the bladder neck. A cutback vaginoplasty is performed by incising the ventral wall of the urogenital sinus and distal vagina, and turning in a broad perineal skin flap to the apex of the vaginal incision. Postoperatively, she develops striking urinary incontinence which is most likely caused by:

B: "disruption of the proximal urethra." is correct.

In patients with extensive virilization, the vagina may enter the urogenital sinus proximal to the urinary sphincter. In this setting, a cutback vaginoplasty may disrupt the proximal urethra and urinary sphincter and cause incontinence. The alternative is a pull-through vaginoplasty where the vagina is completely detached from the urogenital sinus, and the vaginal cuff is exteriorized onto the perineum.

Perlmutter AD: Intersex, in King LR (ed): UROLOGIC SURGERY IN INFANTS AND CHILDREN. Philadelphia, WB Saunders Co, 1998, chap 1, p 3.

A nine-year-old girl with adrenogenital syndrome is severely virilized, and her vagina enters the urogenital sinus immediately below the bladder neck. A cutback vaginoplasty is performed by incising the ventral wall of the urogenital sinus and distal vagina, and turning in a broad perineal skin flap to the apex of the vaginal incision. Postoperatively, she develops striking urinary incontinence which is most likely caused by:

A vesicovaginal fistula.

B disruption of the proximal urethra.

C postoperative neurogenic bladder.

D injury to the bladder neck.

E reflux of urine into the vagina.

A 61-year-man complains of new onset enuresis five years after cystectomy and orthotopic ileal neobladder. His daytime continence is good and the enuresis persists despite restricting fluids for several hours before retiring. The best management is:

C: "determine post-void residual." is correct.

The most likely cause of late onset incontinence following orthotopic ileal neobladder is mucous retention resulting in incomplete bladder emptying. Patients with this condition may still maintain good daytime continence by voluntary contraction of the external sphincter and frequent voiding, but at night pelvic floor relaxation, decreased urethral closing pressure, and hypertonic urine production with an obligate water loss overcome these compensatory behaviors. This problem is best managed initially by catheterization of the pouch to determine post-void residual (PVR) volume and irrigation of mucous. If the PVR is high, then the problem can be solved by having the patient catheterize just before retiring to ensure the pouch is completely empty.

Hautman RE, de Petrriconi R, Gottfried H, et al: The ileal neobladder: Complications and functional results in 363 patents after 11 years of follow-up. J UROL 1999;161:422.

A 61-year-man complains of new onset enuresis five years after cystectomy and orthotopic ileal neobladder. His daytime continence is good and the enuresis persists despite restricting fluids for several hours before retiring. The best management is:

A Kegel exercises.

B oral anticholinergics.

C determine post-void residual.

D augmentation of the neobladder.

E artifical urinary sphincter.

Which medication is associated with an increased incidence of renal insufficiency in patients with either bilateral renal artery stenosis or renal artery stenosis in a solitary kidney:

D: "captopril." is correct.

Captopril causes a pharmacologic blockade of the renin-angiotensin system. Glomerular-capillary hydraulic pressure is determined by the balance between afferent and efferent vascular tone. Efferent arteriolar constriction serves to maintain an effective filtration pressure and glomerular filtration rate when renal arterial perfusion pressure is reduced. In bilateral renal artery stenosis or in renal artery stenosis of a solitary kidney, settings in which total renal blood flow is fixed, failure to autoregulate filtration rate would lead to elevations of the BUN and creatinine. Since evidence suggests that the renin-angiotensin system is responsible for this autoregulation, blockade by captopril would lead to transient renal insufficiency. None of the other drugs listed would produce this effect.

Blumenfeld D, Vaughan ED: Renal physiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 7, pp 261-314.

Which medication is associated with an increased incidence of renal insufficiency in patients with either bilateral renal artery stenosis or renal artery stenosis in a solitary kidney:

A hydrochlorothiazide.

B doxazosin.

C propranolol.

D captopril.

E furosemide.

A 58-year-old woman complains of severe urinary incontinence with coughing or sneezing. Her abdominal leak point pressure is 30 cm H20 with urethral hypermobility, and there is no evidence of detrusor instability on CMG. The best management is:

B: "pubovaginal sling." is correct.

An abdominal leak point pressure below 65 cm of water indicates intrinsic sphincter deficiency. Endoscopic or retropubic suspension procedures are almost always doomed to failure. Injectable agents can improve urethral sphincter deficiency but do not address the urethral hypermobility. The best management is a pubovaginal sling. An artificial sphincter is no better than a sling yet is associated with greater morbidity.

Kennelly MJ, McGuire EJ, in O'Donnell PD (ed): INTRINSIC SPHINCTER DEFICIENCY IN URINARY INCONTINENCE. St. Louis, Mosby Year Book, 1997, chap 28, p 207.

A 58-year-old woman complains of severe urinary incontinence with coughing or sneezing. Her abdominal leak point pressure is 30 cm H20 with urethral hypermobility, and there is no evidence of detrusor instability on CMG. The best management is:

A endoscopic needle suspension.

B pubovaginal sling.

C retropubic suspension.

D artificial urinary sphincter.

E periurethral collagen injection.

A two-month-old girl with a myelomeningocele closed at birth has a febrile urinary tract infection. Videourodynamics demonstrates Grade V/V bilateral reflux, a thick-walled bladder, and leakage around a 5 Fr. urethral catheter at 30 ml volume and a 50 cm H2O pressure. The next step is prophylactic antibiotics and:

A: "vesicostomy." is correct.

This small volume, high pressure bladder may be even worse than urodynamics show, as the bladder volume and pressures are lowered by venting from vesicoureteral reflux. The upper tracts are at great risk. Vesicostomy provides immediate and complete freedom from high pressures with less subsequent reconstructive trouble than cutaneous pyelostomy. Augmentation of the bladder would be premature at this stage as it increases the complexity of care and starts a clock related to the known and unknown complications of enteric substitution. Even if eventually necessary, this could be safely delayed for several years. Anticholinergics and intermittent catheterization are unlikely to help with this very poor lower tract.

Bloom DA, McGuire EJ: Treatment of genitourinary dysfunction in children with myelodysplasia. CURR OPINION PED 1992;4:488-491.

McGuire EJ, Bloom DA: Myelodysplasia. PROBLEMS IN UROL 1993;7(1):1-14.

A two-month-old girl with a myelomeningocele closed at birth has a febrile urinary tract infection. Videourodynamics demonstrates Grade V/V bilateral reflux, a thick-walled bladder, and leakage around a 5 Fr. urethral catheter at 30 ml volume and a 50 cm H_2O pressure. The next step is prophylactic antibiotics and:

A vesicostomy.

B enterocystoplasty.

C cutaneous ureterostomy.

D anticholinergics.

E intermittent catheterization and anticholinergics.

The renal structures best preserved in the presence of obstruction are the:

A: "glomeruli." is correct.

Glomerular changes are the last to occur with hydronephrosis. With long term obstruction, other more distal components of the kidney are destroyed first.

McDougal WS: The kidney, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, 1996, chap 14, pp 617-642.

The renal structures best preserved in the presence of obstruction are the:

A glomeruli.

B proximal tubules.

C loops of Henle.

D distal tubules.

E collecting tubules.

A 22-year-old man develops severe hemorrhagic cystitis ten days following bone marrow transplantation for acute myelocytic leukemia. He had received cyclophosphamide prior to his transplantation. He requires numerous transfusions despite therapy with hydration, continuous bladder irrigation, and a single intravesical instillation of 3% formalin. The next step is:

A: "bilateral percutaneous nephrostomy drainage." is correct.

Severe hemorrhagic cystitis, defined as requiring transfusion of more than six units to maintain hemodynamic stability and refractory to conservative measures, is life-threatening. Intravesical administration of silver nitrate or alum is unlikely to be effective following the failure of formalin. Hypogastric artery embolization has been utilized but complications including gluteal claudication and necrosis of the bladder have been reported. Mesna is only effective when administered at the time of cyclophosphamide therapy since it binds to the active metabolite. Bilateral percutaneous nephrostomy tubes divert urine, which has intrinsic fibrinolytic activity, away from the bladder and more aggressive intravesical therapy can then be applied.

Sneiders A, Pryor JL: Percutaneous nephrostomy drainage in the treatment of severe hemorrhagic cystitis. J UROL 1993;150:966-967.

A 22-year-old man develops severe hemorrhagic cystitis ten days following bone marrow transplantation for acute myelocytic leukemia. He had received cyclophosphamide prior to his transplantation. He requires numerous transfusions despite therapy with hydration, continuous bladder irrigation, and a single intravesical instillation of 3% formalin. The next step is:

A bilateral percutaneous nephrostomy drainage.

B intravesical irrigation with 1% aluminum potassium sulfate.

C intravesical instillation of 1% silver nitrate.

D hypogastric artery embolization.

E administration of sodium 2-mercaptoethane sulfonate (Mesna).

A 48-year-old woman is noted to have abnormal retention of isotope in the left renal collecting system on a bone scan that was performed during staging for breast cancer. The next step to evaluate the left kidney is:

B: "diuretic renogram." is correct.

Radionuclide bone scans may reveal delayed concentration of tracer in the kidney due to a generous collecting system or due to true obstruction. This finding should be confirmed by a functional study such as an IVP or nuclear renogram, which should help determine whether or not this represents a functionally significant obstruction. More invasive procedures are not indicated at this point.

Talner LB, O'Reilly PH, Roy C: Urinary obstruction, Section 6, Obstructive uropathy, Talner LB (ed), in Pollack HM, McClellan BL (eds): CLINICAL UROGRAPHY, ed 2. Philadelphia, WB Saunders Co, 2000, vol 2, chap 59, pp 1909-1911.

A 48-year-old woman is noted to have abnormal retention of isotope in the left renal collecting system on a bone scan that was performed during staging for breast cancer. The next step to evaluate the left kidney is:

A serial creatinine measurements.

B diuretic renogram.

C cystoscopy and retrograde pyelogram.

D antegrade pyelogram.

E renal ultrasound.

A 65-year-old man cannot void following an abdominoperineal resection for rectal cancer. He is treated with intermittent self-catheterization and is continent between catheterizations. Three months later he still cannot void and is re-evaluated. He has a normal creatinine and PSA. Cystoscopy reveals occlusive lateral prostatic lobes and a median lobe which projects onto the trigone. A combined CMG-EMG demonstrates a slight decrease in compliance, but no definite detrusor contraction is seen. His EMG never silences. Preferred management is:

A: "continue intermittent self-catheterization." is correct.

Patients who have undergone an abdominoperineal resection are at risk for developing denervation of not only their bladder but also the urethral sphincter mechanisms. Denervation of the smooth muscle in the area of the bladder neck and membranous urethra places these patients at considerable risk for incontinence following transurethral resection of the prostate. Because of the possibility of urinary incontinence, the preferred management of this patient is continued intermittent self-catheterization. Transurethral resection of the prostate and transurethral incision of the prostate may make the patient incontinent. Bethanechol does not work in the doses that can be administered orally. Tamsulosin will not be effective in the absence of effective detrusor contractions.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 29, pp 953-1006.

A 65-year-old man cannot void following an abdominoperineal resection for rectal cancer. He is treated with intermittent self-catheterization and is continent between catheterizations. Three months later he still cannot void and is re-evaluated. He has a normal creatinine and PSA. Cystoscopy reveals occlusive lateral prostatic lobes and a median lobe which projects onto the trigone. A combined CMG-EMG demonstrates a slight decrease in compliance, but no definite detrusor contraction is seen. His EMG never silences. Preferred management is:

A continue intermittent self-catheterization.

B TURP.

C bethanechol.

D TUIP.

E tamsulosin.

A 30-year-old man has a nine-month history of an increasing testicular mass which is now 3 cm in diameter. He undergoes a right radical orchiectomy which reveals an embryonal cell carcinoma with vascular invasion. There is no evidence of metastatic disease. Preoperative alpha-fetoprotein and beta-hCG are elevated. The best predictor of occult metastasis is:

C: "vascular invasion." is correct.

Size of tumor, the time to presentation, and preoperative elevated serum markers are not the best indicators of subsequent metastases compared to embryonal cell carcinoma and vascular invasion. Of these two, vascular invasion is the best predictor.

Heidenreich A, Sesterhenn IA, Mostofi FK, Moul JW: Prognostic risk factors that identify patients with clinical stage I nonseminomatous germ cell tumors at low risk and high risk for metastasis. CANCER 1998;83:1002-1011.

Moul JW, McCarthy WF, Fernandez EB, Sesterhenn IA: Percentage of embryonal carcinoma and of vascular invasion predicts pathological stage in clinical stage I nonseminomatous testicular cancer. CANCER RES 1994;15:362-364.

A 30-year-old man has a nine-month history of an increasing testicular mass which is now 3 cm in diameter. He undergoes a right radical orchiectomy which reveals an embryonal cell carcinoma with vascular invasion. There is no evidence of metastatic disease. Preoperative alpha-fetoprotein and beta-hCG are elevated. The best predictor of occult metastasis is:

A size of tumor.

B preoperative AFP.

C vascular invasion.

D preoperative hCG.

E duration of symptoms.

A 21-year-old, C-5 quadriplegic man with detrusor-striated sphincter dyssynergia undergoes an external sphincterotomy. One year later, an IVP demonstrates a marked increase in hydronephrosis and a VCUG demonstrates no reflux. Detrusor leak point pressure is 60 cm H2O and the postvoid residual urine is 150 ml. Urine cultures reveal no growth. The most appropriate management is:

C: "repeat sphincterotomy." is correct.

Despite having undergone an external sphincterotomy, this patient continues to have urinary retention and progressive hydronephrosis and an inadequate sphincterotomy is the most likely cause. The patient, therefore, should undergo a repeat sphincterotomy. Every attempt should be made not to place an indwelling catheter. Oral diazepam and dantrolene sodium are, in general, not effective in improving bladder function in patients with detrusor-striated sphincter dyssynergia. Terazosin is not likely to be helpful in this setting.

Steers WD, Barrett DM, Wein AJ: Voiding dysfunction: Diagnosis, classification, and management, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, 1996, pp 1220-1325.

A 21-year-old, C-5 quadriplegic man with detrusor-striated sphincter dyssynergia undergoes an external sphincterotomy. One year later, an IVP demonstrates a marked increase in hydronephrosis and a VCUG demonstrates no reflux. Detrusor leak point pressure is 60 cm H_2O and the postvoid residual urine is 150 ml. Urine cultures reveal no growth. The most appropriate management is:

A placement of a suprapubic catheter.

B diazepam.

C repeat sphincterotomy.

D dantrolene sodium.

E terazosin.

A 45-year-old man has progressive lower urinary tract symptoms. Physical examination of the prostate and PSA are normal. PSA is normal. Cystoscopically, the patient has minimal lateral lobe hypertrophy but marked elevation of the bladder neck and trigone. Both ureteral orifices are normal, and there is mild trabeculation of the bladder. Transrectal ultrasound shows a large midline cystic mass, aspiration of which reveals clear fluid without sperm. The most likely diagnosis is:

C: "mullerian duct cyst." is correct.

A midline cystic structure in a younger man, above the prostate and not containing sperm, is most likely a mullerian duct cyst. A urachal cyst would be superior. Seminal vesicle lesions would be lateral.

Yasumoto R, Kawano M, Tsujino T, et al: Is a cystic lesion located at the midline of the prostate a mullerian duct cyst? Analysis of aspirated fluid and histopathological study of the cyst wall. EUR UROL 1997:31(2):187-189.

A 45-year-old man has progressive lower urinary tract symptoms. Physical examination of the prostate and PSA are normal. PSA is normal. Cystoscopically, the patient has minimal lateral lobe hypertrophy but marked elevation of the bladder neck and trigone. Both ureteral orifices are normal, and there is mild trabeculation of the bladder. Transrectal ultrasound shows a large midline cystic mass, aspiration of which reveals clear fluid without sperm. The most likely diagnosis is:

A urachal cyst.

B seminal vesicle cyst.

C mullerian duct cyst.

D cystadenoma of the seminal vesicle.

E wolffian duct cyst.

A 22-year-old man treated with bleomycin, etoposide, and cis-platinum for a Stage II mixed germ cell tumor of the testis has a residual abdominal mass. Preoperative pulmonary function testing discloses a mild reduction in forced vital capacity. The most important factor in minimizing the risk of post-operative pulmonary problems after RPLND is limitation of:

D: "intravenous fluids." is correct.

A recent retrospective study has challenged the classical teaching that oxygen exposure increases the likelihood of pulmonary toxicity in patients treated with bleomycin. In this study the factors associated with postoperative pulmonary problems were positive fluid balance, amount of blood transfused, surgical time, estimated blood loss, and forced vital capacity, while the fraction of inspired oxygen was not a predictor of adverse outcome. Avoiding overhydration was the most important factor in limiting pulmonary problems.

Donat SM, Levy DA: Bleomycin associated pulmonary toxicity. Is perioperative oxygen restriction necessary? J UROL 1998;160:1347-1352.

A 22-year-old man treated with bleomycin, etoposide, and cis-platinum for a Stage II mixed germ cell tumor of the testis has a residual abdominal mass. Preoperative pulmonary function testing discloses a mild reduction in forced vital capacity. The most important factor in minimizing the risk of post-operative pulmonary problems after RPLND is limitation of:

A inspired oxygen concentration.

B the extent of resection.

C perioperative steroids.

D intravenous fluids.

E the length of the incision.

A seven-year-old 30 kg girl with myelodysplasia is wet between catheterizations. She takes oxybutynin 5 mg three times per day. A VCUG shows a trabeculated bladder with Grade III/V reflux bilaterally. CMG shows a bladder pressure of 80 cm H2O at a volume of 100 ml. The best management is:

C: "enterocystoplasty." is correct.

This patient is at risk to develop upper tract damage because of her poor bladder compliance and a relatively high urethral resistance. Intestinocystoplasty will increase bladder volume and improve bladder compliance. The patient is on the maximum dose of oxybutynin for her weight and an increased dose would not likely benefit the child. Urethral dilation could be used, but this is a temporary measure and used mostly in diaper dependent children. Bilateral reimplants alone would not be treating the primary pathology. A repeat CMG is not needed. In children with VUR, the CMG may be misleading if the capacity and compliance appear adequate due to the "pop-off" of the refluxing urine. However, if the compliance is poor one can proceed with treatment based on simple CMG.

McGuire EJ, Bloom DA, Ritchey ML: Myelodysplasia, in Blaivas J, Chancellor MB (eds): PROBLEMS IN UROLOGY. Philadelphia, JP Lippincott, 1993, vol 7(1), pp 1-14.

A seven-year-old 30 kg girl with myelodysplasia is wet between catheterizations. She takes oxybutynin 5 mg three times per day. A VCUG shows a trabeculated bladder with Grade III/V reflux bilaterally. CMG shows a bladder pressure of 80 cm H2O at a volume of 100 ml. The best management is:

A urethral dilation.

B bilateral ureteral reimplantation.

C enterocystoplasty.

D increase anticholinergic drugs.

E repeat CMG with Fogarty catheter, to occlude ureters.

The normal course of the ureter in relation to the uterine artery is:

A: "posterior." is correct.

The arterial supply to the uterus comes from the uterine artery which is a branch of the anterior trunk of the internal iliac artery. This vessel is of surgical importance since it crosses the ureter 2 cm from the cervix and provides a small branch to the ureter.

Hinman F Jr: Female genital tract and urethra, in ATLAS OF UROSURGICAL ANATOMY. Philadelphia, WB Saunders Co, 1993, chap 15, pp 389-416.

The normal course of the ureter in relation to the uterine artery is:

A posterior.

B anterior.

C medial.

D lateral.

E caudad.

A 33-year-old man has sharply marginated, dusky red patches on his inner thighs. The scrotum and penis are not involved, and only mild inflammation is present in the inguinoscrotal folds. The peripheral borders of the patches are elevated and erythematous. The treatment of choice is:

B: "topical tolnaftate (Tinactin)." is correct.

The clinical description is most consistent with a tinea cruris infection caused by a dermatophyte. Trichophyton rubrum, Trichophyton mentagrophytes and Epidermophyton floccosum are the most common causative organism. This condition is relatively common and should be easily recognized by urologists. Topical tolnaftate is specific treatment for this fungus. Topically applied nystatin is effective only in candidiasis. Orally administered fluconazole is not indicated. Steroid therapy should not be administered.

Margolis DJ: Cutaneous diseases of the male external genitalia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 21, p 727.

A 33-year-old man has sharply marginated, dusky red patches on his inner thighs. The scrotum and penis are not involved, and only mild inflammation is present in the inguinoscrotal folds. The peripheral borders of the patches are elevated and erythematous. The treatment of choice is:

A topical nystatin (Mycostatin).

B topical tolnaftate (Tinactin).

C oral fluconazole (Diflucan).

D topical triamcinolone (Aristocort).

E oral prednisone (Deltasone).

The worst prognosis in a child with Wilms' tumor is associated with:

C: "local tumor spill, diffuse anaplasia." is correct.

The most important prognostic factors for Wilms' tumor patients are histology and tumor stage. Of these two, histology is most important. Unfavorable histology patients account for 50% of tumor deaths although they represent only 10% of patients. Diffuse anaplasia and rhabdoid tumor have the worst survival. This is particularly true if the tumor extends outside the kidney since these tumors are resistant to standard Wilms' tumor therapies. Survival in clear cell sarcoma has improved with the addition of doxorubicin to the chemotherapy regimen.

Ritchey M, Andrassy R, Kelalis P: Pediatric urologic oncology, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, 1996, vol 3, chap 58, pp 2675-2720.

The worst prognosis in a child with Wilms' tumor is associated with:

A lymph node metastases, favorable histology.

B pulmonary metastases, favorable histology.

C local tumor spill, diffuse anaplasia.

D microscopic residual disease, clear cell sarcoma.

E diffuse tumor spill, favorable histology.

In a patient with metabolic alkalosis, which clinical situation is associated with low urinary chloride excretion:

E: "prolonged nasogastric suction." is correct.

Only in prolonged nasogastric suction would chloride loss decrease urinary chloride excretion. In Bartter's syndrome and diuretic abuse, urinary chloride would be excessive because of increased delivery of chloride to the distal nephron. In mineralocorticoid excess, alkalosis is maintained by continuous generation of bicarbonate by the distal nephron and no chloride depletion occurs.

Jones ER: Metabolic alkalosis, in Greenberg A (ed): PRIMER ON KIDNEY DISEASES. San Diego, Academic Press, 1994, pp 382-386.

McDougal WS: Perioperative care, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, 1996, vol 1 chap 20, pp 521-523.

In a patient with metabolic alkalosis, which clinical situation is associated with low urinary chloride excretion:

A primary hyperaldosteronism.

B Cushing's syndrome.

C Bartter's syndrome.

D diuretic abuse.

E prolonged nasogastric suction.

A 15-year-old sexually active boy has a painless mass in the head of the left epididymis. He is placed on doxycycline. Six weeks later, the mass has not changed and a ultrasound shows a 1.5 cm echogenic mass in the head of the left epididymis. The next step is:

C: "serial cultures for AFB." is correct.

Tuberculous epididymis is the most common form of urogenital TB and should be considered when evaluating scrotal masses. This form of epididymitis is more likely to be considered a possible malignancy since it is painless and not of an acute nature. In most pediatric cases, there are other hematogenous areas of involvement and the urine culture may or may not be positive for AFB. Therefore, tuberculous epididymitis may be the first and only presenting symptom of genitourinary tuberculosis in cases where the IVP is normal and M. tuberculosis cannot be isolated. The diagnosis is made by culture of M. tuberculosis from a discharging sinus or after epididymectomy.

Shortliffe LMD: Urinary tract infections in infants and children, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 57, pp 1681-1707.

Gow JE: Genitourinary tuberculosis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 24, p 817.

A 15-year-old sexually active boy has a painless mass in the head of the left epididymis. He is placed on doxycycline. Six weeks later, the mass has not changed and a ultrasound shows a 1.5 cm echogenic mass in the head of the left epididymis. The next step is:

A repeat course of doxycycline.

B urine culture for chlamydia.

C serial cultures for AFB.

D biopsy of mass.

E epididymectomy.